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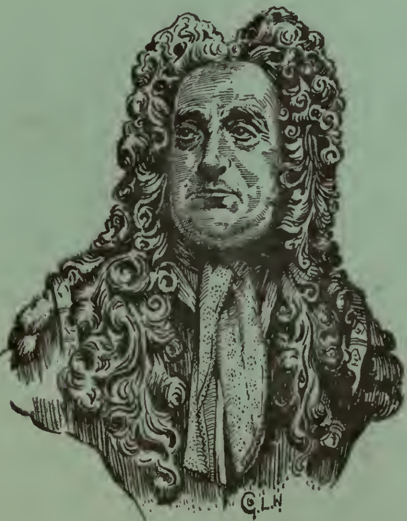
GUY L. WILKINS



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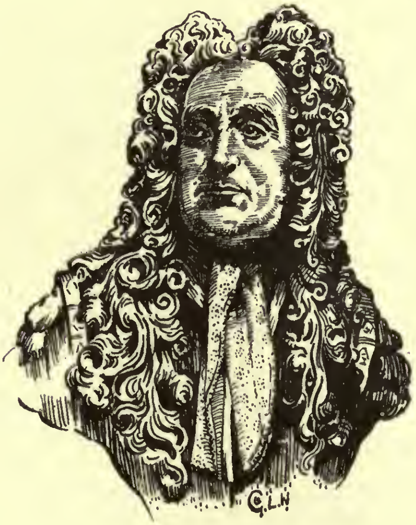
BRITISH MUSEUM NATURAL HISTORY



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THE BRITISH MUSEUM

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A CATALOGUE AND HISTORICAL ACCOUNT OF THE SLOANE SHELL COLLECTION

By GUY L. WILKINS

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SYNOPSIS

The surviving Sloane shells, recorded and described in detail in this paper, formed part of the nucleus of the shell collection in the British Museum at its inception in 1753. Many specimens date from the mid-Seventeenth Century and have personal associations with William Courten, Martin Lister, James Petiver, William Dampier, and numerous other contemporary author-naturalists and travellers.

An attempt has been made to trace the history of the Sloane shell collection from the time of Courten and Lister to the present day—a period of nearly two hundred and seventy years. Many Sloane specimens were figured by Lister from 1685 to 1692, and a selection of these, together with the actual specimens and original Lister drawings, are reproduced in the accompanying plates.

1. HISTORICAL ACCOUNT OF THE SLOANE SHELL COLLECTION

It was assumed for many years that the recent shells forming part of the great collections of Sir Hans Sloane (1660–1753) were no longer recognizable, if indeed, they existed at all, and it is therefore satisfactory to be able to record that over four hundred of his original specimens were discovered during 1950–51 among the older portions of the shell collections in the Department of Zoology. These specimens formed part of the collection acquired by the Nation after the death of Sir Hans Sloane in 1753, and thus became the nucleus of the present collection of mollusca.

The life of this great collector has been dealt with in several publications, and therefore only biographical and historical notes having a direct bearing on his collection of shells are mentioned here. Sloane compiled a number of manuscript catalogues recording his acquisitions, three volumes being devoted to the "Testacea" or shells, and the specimens now segregated bear his manuscript numbers corresponding to those in the surprisingly comprehensive catalogues. The numbers, written in ink either on small labels attached to the shells, or on the shells themselves, are in some instances quite clear, but in others faint and difficult to decipher correctly. Some of the numbered specimens have been recovered from those formerly on exhibition; the remainder were found among the study material. In the years 1799 and 1837, when particularly fine shells became available for exhibition, it is probable that many dull-looking Sloane specimens were replaced in the exhibition cases with fresh ones. Heavy cleaning in the past has undoubtedly been responsible for the loss of catalogue numbers, and for this reason alone it is certain that a number of Sloane shells still exist unrecognized in the general collection.

The calligraphy of the numbers on the shells corresponds exactly with that in the catalogues, and it is clear that the specimens were numbered as the entries were made, and by the same hand, satisfactorily proved to be that of Sloane himself. His writing was always poor, but towards the end of the third volume it gets steadily worse, sometimes roving across the page at an awkward angle and becoming even less readable. By this time (*c.* 1747) Sloane was 86 years of age and evidently needed assistance, for the last few pages of entries are made by different hands, one being that of James Empson, his curator, and subsequently first Keeper of the Natural History Department of the British Museum (d. 1765).

The date of the commencement of the "Testacea" catalogues is not certain, but may have been as early as 1702. At the end of the third volume a list is given of the fossil shells only, selected and summarized from the first two volumes, and made up to mid-October, 1728, amounting in all to 1,757 specimens. The list and summary are arranged methodically, preceded by the catalogue numbers, the highest being No. 4911, the last entry to be made in Volume II. Thus by October, 1728, the collection contained 3,154 recent shells.

Volume III commences with No. 4912 and ends with No. 5846, shortly after September, 1747, six years before Sloane's death. This date is definitely fixed by entry No. 5843, which records the gift of a fossil *Anomia* from Emanuel Mendes da Costa (1717–1791) on 17th September, 1747. Judging from the catalogue numbers alone, it would appear that only 934 specimens were added to the collection from 1728 to 1747, but this is not so, for additional specimens of the same species were added by Sloane to the original entries, each additional item being separated by an oblique line; for example entry No. 1482 (Pl. 2, fig. 2) includes no less than nine specimens under the one number, each acquired and entered at different times.

When the catalogues were begun, wide spaces were left between the entries to accommodate future additions, and even the opposite (blank) page was frequently used (Pl. 2, fig. 3).

From the foregoing it will readily be seen that the collection of recent and fossil shells was considerably larger than the 5,843 specimens first mentioned by George Edwards in 1758, and repeated by most authors since that date. Most of Sloane's important collections of shells were acquired by 1728, and although a number of them were sorted and catalogued in readiness for work on the second volume of his *Natural History of Jamaica*, published in 1725, it is unlikely that all would be catalogued by 1728. Sloane's own figure of 3,753 recent and fossil shells, recorded in the above work, leaves a balance 1,158 specimens acquired during the next three years, to bring the total to the 1728 figure of 4,911. This increase was perhaps due to the return of Mark Catesby to this country in 1726 from his visit to Carolina and the Bahama Islands.

Except for the earlier entries of specimens (that is to say the first to be entered under each number), the localities and names of the donors, with full references to the literature, were recorded with admirable regularity. Fortunately Sloane worked with Martin Lister's *Historia Conchyliorum* before him, and constantly identified his specimens with the figures therein, usually giving the plate and figure numbers. These references to Lister provide a useful check when numbers on the shells are too faint to be fully deciphered, for so long as two figures of a series of three or four are visible, the correct number can be reached from the entry giving the relevant Lister plate and figure number.

When checking the specimens it was found that not only were they comparable with Lister's figures, but in many instances they were the actual specimens from which the plates were engraved by the author's two daughters, Susanna and Anna Lister, between the years 1685 and 1692. The first part of Lister's *Historia* was dedicated to that " illustrious and excellent man William Courten, of the Middle Temple, London," as a mark of appreciation for the help received by the loan of specimens for illustration, a sentiment that is enlarged upon in the minutely engraved Latin preface, forming pls. 4 and 5, wherein Lister praises Courten " both on account of the extreme industry with which he collects these specimens at great cost, stores them neatly and preserves them carefully, and on account of his remarkable kindness in giving easy access to myself and other research workers in natural history, and in affording them the opportunity of drawing and describing these and other objects of the same kind from his abundant resources."

In the 1770 Oxford reprint of the *Historia* William Huddesford published some of Lister's manuscript notes, from which it is evident that he figured many specimens not to be seen elsewhere from this great collection. Courten is referred to in these notes as " Mr. C." or " Mr. Charlton," an assumed name by which he was known for many years. William Courten died in 1702, and his collection, said by John Evelyn to be worth £8,000 (*Diary*, 16th December, 1686), was bequeathed to Sloane, and this satisfactorily accounts for the presence of the greater number of Lister's figured specimens now recovered. These Courten shells must be the earliest specimens yet recognized in the Museum collections, for Courten, although a contemporary of Sloane, was eighteen years his senior, and would therefore have begun to collect in the early 1660's. A small manuscript catalogue of his " Curiosities " in the British Museum (Sloane MSS. 3988) records several purchases from the widow of John Tradescant in 1667, before that collection, known as " Tradescant's Ark," was finally handed over to Elias Ashmole, founder of the Ashmolean Museum, Oxford.

Courten lived much abroad, and had family interests in Barbados through his paternal grandfather, Sir William Courten (1572–1636), who discovered the island and colonized it about 1625 ; this may account for the not infrequent appearance of that locality on Lister's plates.

During the course of the present work the author's attention was drawn to a copy of the Huddesford edition of the *Historia Conchyliorum* in the Radcliffe Science Library by Mr. J. M. Edmonds, of the Department of Geology, University Museum, Oxford. This copy (once the property of a Dr. Combe) contains a number of water-colour drawings which have been inserted by a previous owner, accompanied by proof impressions of the engraved plates, pasted in beside the corresponding figure in the book, or on the opposite blank page, together with the appropriate coloured sketch. Careful examination revealed that these drawings were the originals from which some of the plates were engraved, a fact eventually established by finding a drawing of *Patella testudinaria* L. bearing the initials " A. L." (i.e., Anna Lister) in the lower right-hand corner (Lister Tab. 531).

Several of the drawings were found to be accompanied by manuscript notes in Lister's writing, with a note recording the collector by whom the specimens were lent for illustration. These notes confirm again that many specimens were borrowed, and may be of service in tracing additional and unsuspected Sloane material. The importance of this unique copy of the *Historia* cannot be overestimated, as it proves beyond doubt the origin of several of Lister's figures, and confirms in some measure the statement made by E. M. da Costa (p. 34) that " Dr. Lister, to complete his intended work, carried home all the shells singly to his daughters, to engrave on single or detached copper plates."

It was at first thought that all the engravings were based on these and similar wash-drawings, but on closer examination it was noticed that in every instance they corresponded only with those which have already been shown elsewhere (Wilkins, 1952) to be the work of Susanna Lister, in that a certain amount of cross-hatching was used in the cast shadows of the finished engravings, whereas her fellow artist Anna used only direct graduated lines. This difference in technique seemed to indicate that Anna Lister might have engraved direct on to copper from the actual object, without preparatory drawings; but in following up a statement made by the late Dr. R. T. Gunther (1925, p. 320), to the effect that Martin Lister presented the original drawings used in the *Historia* to the Ashmolean Museum, it was found that preparatory drawings were made for both styles of engraving, and they are still extant in the Bodleian Library, forming the bulky volume catalogued as *Lister MS*.9.[1]

This volume appeared, on first sight, to be disappointing. Although a number of the expected wash-drawings were present, the majority appeared to be merely unnumbered proofs of the plates in Anna Lister's style; but closer inspection revealed these to be original drawings in india ink, carried out in the finest brushwork, to be repeated line-for-line in the finished engravings. From a study of these two styles of drawing, it might naturally have been concluded that Susanna Lister engraved from her less laborious, but quite competent wash-drawings, and Anna from her highly finished black and white ones; the single wash-drawing, however, signed " A. L." recorded above, indicates that the latter prepared at least some of the wash-drawings used by her sister. In no instance have any wash-drawings been found that were finally engraved in the unmistakable manner of Anna Lister.

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[1] Dr. Gunther gives 1685 as the date of presentation of Lister's shells and drawings, obviously a misprint for 1683, the date under which the Lister entry appears in the original Ashmolean *Book of Benefactors* and also in other parts of Dr. Gunther's work.

The work of these two seventeenth-century artists has been discussed at some length because of their close association with the considerable number of Sloane specimens used by their father, which may eventually prove to be the only original specimens figured by Lister still in existence; for although Maton and Rackett (1803, p. 140) were able to state that Lister's collection was not deficient, either in number or perfection of specimens—a fact that was evident " from what remains of it in the Ashmolean Museum, Oxford," a recent preliminary search there has failed to reveal any shells recognizable as figured by Lister.

In the light of recent experience at South Kensington, the apparent loss of ancient material at Oxford does not signify that some of it may not yet be found, for the situation may be similar to that of the " cleaning-up " process considered to be the cause of the supposed loss of many Sloane specimens. It is not yet known whether Lister catalogued or numbered his specimens, and in view of the considerable number of shells known to have been borrowed from Courten, Sloane, Lhwyd and other collectors, and those copied from Buonanni and other authors, Lister's collection may not have been as large as might have been expected of the author of the *Historia Conchyliorum*. The composite character of the material used is well indicated by Lister himself in the first paragraph of his preface (*Historia*, Tab. 4.), in which he says, " I have thought it worth while to give a brief account of those in our possession (of which there are quite a number) and in the possession of others in the Museums in this city, and to commit this accurately to writing and copper-plate engraving."

Dr. Gunther's statement regarding the presentation date of the drawings used in the *Historia* appears to need amplification, as it rather gives the impression that the drawings and plates made from them were finished much earlier than appears feasible, for Lister could hardly have been in a position to release all this material two years before the publication of even the first of the four books. His gifts of books and specimens to the Ashmolean Museum were continuous over a long period, and it is therefore likely that these drawings were given at a much later date to supplement the collection of shells, coins and general antiquities which were certainly presented at the opening of the Ashmolean Museum in 1683, but there is no specific mention of the drawings in the *Book of Benefactors* entry made in that year.

The originals of twenty-three of the forty engravings of Sloane specimens have been traced in these two collections of Lister drawings, and it is remarkable, in view of the passing of more than two hundred and sixty years since the commencement of the *Historia*, that it is possible to compare some of the original specimens with the preliminary sketches, finished drawings, and final engravings.

Some of the figured specimens in the *Historia* were collected by Sloane himself, a fact that is recorded in the Huddesford notes to pl. 65, in which Lister says that the specimen figured was " sent from Jamaica by Dr. Sloane " ; this and other land shells were collected and despatched in response to a request made by Lister on the flyleaf of a copy of the first part of his work,[1] presented to the young doctor before his departure for Jamaica (Pl. 1, fig. 1). Further evidence of his compliance with this request appears on plates 55 and 62 of the *Historia*, where the name Sloane is engraved under the respective figures. These plates were added after the first publication date of 1685, for Sloane did not sail for Jamaica until September, 1687. He certainly found some " naked snails," one of which was figured on pl. 233 of the *Natural History of Jamaica*, being there described as *Limax nudus, cinereus terrestris.*[2]

An early collection of some importance acquired by Sir Hans Sloane was that of Doctor Englebert Kaempfer (1651–1716), who visited Japan in his capacity of Physician to the Dutch East India Company between the years 1690 and 1692, and it was during this visit that Kaempfer gathered the information for his exhaustive *History of Japan*, published posthumously, in two handsome volumes, in 1727 at Sloane's expense. A number of shells, some marked " Japan " and catalogued by Sloane as being " among Dr. Kaempfer's shells," are still extant and in good condition.

A close friend and contemporary of Sir Hans Sloane was the enthusiastic collector and Apothecary to the Charterhouse, James Petiver (1658–1718), who was said by John Ray to have " the largest correspondence with the East and West Indies of any man in Europe," a reputation which seems to be borne out by the varied localities from whence his specimens were obtained. When Petiver died, Sloane purchased his collection for the sum of £4,000, and eventually incorporated it with his own; the frequently appearing letter " P " after entries in the catalogues and on the specimens themselves indicates the large number of shells contained in the collection at that time. Petiver figured and described many of these in his own publications, which were considerable, commencing with the *Museum Petiverianum* in 1695. Ten parts, or " centuries," were finished by 1703, after which he started his *magnum opus*, the *Gazophylacium Naturae et Artis*, published in ten parts, each with ten plates, completed in 1709.

This work, to all intents and purposes, formed a series of illustrated catalogues of his collections of mammals, birds, insects, plants and shells, gathered from all parts of the known world by his many correspondents, to whom acknowledgments were frequently made at the foot of the engraved plates.

Several contributions were made by Petiver to the *Philosophical Transactions* between 1698 and 1717, relating to his acquisitions of shells, and these, together with references to the *Gazophylacium*, were duly noted by Sloane when cataloguing the actual specimens; thus the phrase " designed by Mr. Petiver for his *Gaz. Nat.*"

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[1] This copy, still extant in the British Museum, is catalogued under the earlier title of *De Cochleis*, which was designed by the author for exotic land shells only, until he changed his mind to make it a general work, after completion of the first book. The erasure of the word *Exotica* can be seen in several of the plates (see da Costa 1776, p. 34).

[2] For a discussion and synonomy of this slug see Cockerell & Collinge, *The Conchologist*, vol. ii, p. 217, 1893.

occurs from time to time throughout the catalogues. A number of these figured specimens marked by Sloane and Petiver have been recovered, and will be more fully noted in the relevant part of this paper.

References were also made by Sloane to the *Monthly Miscellany* or *Memoirs for the Curious*, a collection of articles on various subjects by " Divers Curious Persons " and conducted by Petiver himself. Three volumes appeared between 1707 and 1709 and included several items on shells from the pen of the compiler, the most important being one on some bivalve shells brought from the coasts of India. These volumes are now extremely rare; the only two copies so far traced are in the library of the British Museum (Bloomsbury).

No account of the collections of these two contemporaries, Sloane and Petiver, can in any way be complete without mention of at least a few of the many collectors in the field, who contributed so much to them. Apart from Sloane's early visit to Jamaica, neither he nor Petiver travelled far afield in search of material for their collections, but relied almost exclusively on the services of the more venturesome of their friends and professional colleagues who could be persuaded to send whatever curiosities they found during their travels abroad. Several of these contributors were surgeons or officers in the service of the East India Company during its early and troubled days in India and China, so that a great number of shells were received from such places as Fort St. George (Madras), Surat and Chusan, where British factories had been, or were in process of being, established.

James Cunningham, ill-fated surgeon to the East India Company, sent consignments to both Sloane and Petiver from Emuy in 1698, the Island of Chusan in 1700, and from Pulo Condore in 1702–3, several being reported upon almost immediately by Petiver in the *Philosophical Transactions* for 1698 and 1701. These years were particularly fruitful for the Sloane and Petiver collections, for other consignments of plants and shells were sent by Samuel Brown, a surgeon at Madras; Father Kamel (or Camelli), the Jesuit priest residing at Manila in the Philippine Islands, and a frequent correspondent of John Ray; Sylvanus Landon and Rowleston Jacobs from the Moluccas; the Rev. Hugh Jones from Maryland, and Dr. Hermann from the Cape of Good Hope.

A large series of shells was received about this time from the Straits of Magellan collected by Mr. Handisyd, one or two of which still survive with the number and locality written on the shell. At a somewhat later date (1705) a collection of shells was received by Petiver from Madame Williams in Carolina, and described by him in the *Philosophical Transactions* in the same year. A few of these still exist marked with the letters " CAR."

An interesting and even romantic name which occurs in the catalogues is that of William Dampier (1652–1715), navigator and buccaneer, who is known to have taken considerable interest in the natural history of the countries he visited. Thus in his *Observations on the Coast of New Holland*, 1699, the following passage occurs regarding the shells observed in Sharks Bay: " Of shell fish we got here muscles, periwinkles, limpits, oysters, cockles, etc. The shore was lined thick with many other sorts of very strange and beautiful shells, for variety of colour and shape, most finely spotted with red, black or yellow, etc., such as I have not seen anywhere but this place. I brought away a great many of them, but lost all except a very few, and those not of the best." The few specimens extant in the collection given to Sloane by Dampier himself, belong to a later period, being catalogued as from "Dampier's 2nd circumnavigation"—probably the voyage made in 1708–11 financed by several Bristol merchants with the object of harassing the Spanish shipping in the South Seas. Dampier acted as navigator under Captain Woodes Rogers, who has left an account of the voyage.

Later contributors include Mark Catesby (d. 1749); Peter Collinson (d. 1768), and John Bartram the elder (d. 1777), each of whom added in some way to the Sloane collection. Mark Catesby, author of the *Natural History of Carolina*, appears most frequently in the catalogues of his patron, and there is abundant evidence, both in the preface to his work and in the actual catalogue entries, that Sloane was amply recompensed for his generosity in helping to finance Catesby's stay in Carolina from 1722 to 1726.

The opening of the Sloane collection to the public in 1759, under its new title of "The British Museum," and the engagement of the nucleus of a scientific staff, made a vast quantity of unworked material available to authors of the late eighteenth and early nineteenth centuries. Writers on conchology were not slow to grasp this opportunity, and thus began an era of scientific and popular publications that reached its zenith with the production of Lovell Reeve's *Conchologia Iconica* (commenced in 1843 and based largely on Museum material).

One of the earliest works to appear within a few years of the transition of the Sloane collection from private hands to a public institution, was the anonymous *Conchology*, usually ascribed to the joint authorship of E. M. da Costa and George Humphreys, published in 1770. The plates were finely coloured and perhaps too elaborate to be produced economically, for the first part was the only one issued, further parts being held up "at least for the present" through lack of suitable encouragement, a situation which da Costa (pp. 51–52) was at some pains to explain, thereby giving a good clue to the actual authorship. Several Museum specimens were included among the excellent figures and, as far as can be ascertained, this is the only work to figure a specimen, quoting an original Sloane number in the text.

George Shaw (1751–1813), Assistant Keeper of the Natural History Department in 1791 and first Keeper of the new "Department of Natural History and Modern Curiosities" instituted in 1806, was one of the most prolific writers of his time on Natural History, but his works were mostly compilations and added little to the Conchological knowledge of his day. Some, at least, of the many coloured plates of shells scattered through the twenty-four volumes of the *Naturalist's Miscellany* (1790–1813) were based on Sloane material, and therefore "drawn and described immediately from nature" as specified on the title-pages, but the majority were copied, often inaccurately, from Knorr (1760–73), Chemnitz (1769–95), and other authors. The plates were engraved by R. Nodder, who seems to have used little, or perhaps too much, imagination in his work, for some of the figures have been found to be mere tracings, apparently transferred to the plates without troubling to reverse them, so that the serious fault of normally dextral shells becoming sinistral frequently occurs. Dr. Shaw has been praised for the "elegant latinity" of his descriptions, but it would seem that Swainson's characteristic and even pungent accusation of his "habitually purloining from the works of others" may at least have some foundation in fact.

Of greater value were the three volumes of the *Zoological Miscellany* compiled and published by Dr. W. E. Leach from 1814 to 1817, and usually regarded as a continuation of Shaw's series, completed before his death in 1813. Leach was appointed Assistant Keeper under König in 1813, and did much to improve the Sloane collections, which had already begun to deteriorate, owing partly to the imperfect preservation of specimens by the older naturalists. The Sloane shells were evidently examined and several described and figured in the *Miscellany* as new to science. Three of these have been recognized and will be mentioned more fully later.

Another early work, the *Museum Britannicum*, purporting to be a description of the "Magnificent Cabinet, the British Museum," published in folio by J. & A. van Rymsdyk in 1778, contained several figures of Sloane shells; in particular a plate devoted to the *Pinna*, "*Pinna marina*" or Fan Mussel, with figures of the shell, and a pair of gloves woven from the fibres of its silky byssus, from Andalusia, presented to Sir Hans Sloane by the Duke of Richmond. One of these gloves is still extant and in good preservation.

Dr. Leach's successor, J. G. Children, also used Museum material to illustrate his translation of Lamarck's *Genera of Shells*, which appeared in the *Quarterly Journal of Science* 1822–1823; the drawings for the folding plates, engraved by Basire, were prepared by his daughter, and undoubtedly include a selection of Sloane specimens.

In 1828 William Wood compiled a *Supplement* to the second edition of his *Index Testaceologicus*, originally published in 1825, in which the first attempt was made to bring a practical illustrated index of almost every species of shell known at that time within easy reach of the general public, an object that was achieved with some success by engraving and colouring the figures in miniature, with code marks indicating the actual size of the specimens.

In the preface to his *Supplement* Wood noted that the majority of the shells illustrated were from the British Museum collection, and one or two of these have been identified as original Sloane specimens.

Edward Griffith's 1834 edition of Cuvier's *Animal Kingdom*, of which he and Edward Pigeon produced the volume on the "Mollusca and Radiata," falls into a similar category as Wood's *Supplement*, for a single line in very small type at the foot of the first page of the Index informs the reader that "most of the inedited shells figured are from the collection in the British Museum"; this line takes on its full meaning when it is found that many items in the Index are new names, with short descriptions, apparently contributed by John Edward Gray, who was appointed Assistant in 1824 under J. G. Children.

The possibilities of this volume have not yet been fully explored for Sloane material, but the original of Gray's *Voluta rudis*, Pl. 30, fig. 1 (previously described as *Voluta ferussaci* by Donovan in 1824), has been recovered, and although it bears no Sloane catalogue number, the general appearance of the specimen suggests that it may be one of the long series of shells received by Sloane from one of its recorded localities, the Straits of Magellan.

By 1836, just seventy-seven years after the opening of the Museum, the Sloane shell collection may be said to have lost a great deal of its identity, for by that time it had become merged with the collections of the Royal Society (presented in 1781), and of the Rev. Mordaunt Cracherode (bequeathed in 1799). Sundry purchases from private collections such as the Earl of Tankerville's in 1825, and the incorporation of the collections of Sir Joseph Banks in 1827, had increased the collection to such an extent that in 1836 J. E. Gray estimated that it consisted of no less than 15,000 specimens (4,025 species). This total appears rather high, but it should be remembered that the Sloane collection itself contained a far greater number of
37? shells than is usually accepted, and also that until 1837, when a separate Department of Geology was created, the general collection included fossil as well as recent shells.

41? The original collection was finally eclipsed by the acquisition in 1837 of the very fine series of shells formed by W. J. Broderip, F.R.S., which, in the words of Mr. Edgar Smith, " must have altogether altered the character of the National collection." It was probably on this occasion, as already suggested, that many Sloane specimens were cleaned to achieve uniformity with these fresh ones, with the result that catalogue-numbers were either partly or completely obliterated. As the present search for Sloane material continued, it became increasingly evident that this explanation was the right one, and that an excess of zeal on the part of early curators may be partly responsible for the belief of the later curators (notably E. A. Smith) that the original Sloane shells had completely lost their identity.

J. E. Gray (appointed to the Keepership in 1840) was probably the last author to describe Sloane specimens as such, for in 1849 he published Part One of the *Catalogue of Mollusca in the British Museum*, which dealt with the Cephalopoda; this included two new species based on Sloane specimens, *Sepioteuthis sloanii*[1] (previously described in manuscript by Leach) and *Ommastrephes sloanii*, both noted as " Mus. Sloane." The dry gladius of the former, removed by Leach himself, and the animal in spirit are still extant, but only a few fragments of the dried gladius of the latter remain.

In 1850 and succeeding years Dr. Gray compiled several more Mollusca catalogues, marking the species represented in the Museum collection with a " B.M."; specimens whose origin was unknown were marked "Hab-?" and it is highly probable that Sloane material, which had long lost its identity, was unconsciously included in these and other publications in which this prolific author was interested.

As already suggested above, it is likely that a considerable number of Sloane specimens are still unrecognized in the general collection; these may come to light in the course of routine curatorial work, but sufficient have now been recovered to indicate the scope and historical importance of the collection in its original condition, and to make it possible to appreciate the great contribution made to early science by Courten, Sloane, and Petiver.

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[1] This is *Sepioteuthis sepioidea* Blainville, a Caribbean species.

2. CATALOGUE OF THE SLOANE SHELL COLLECTION

SECTION I.

Introductory notes

This section of the catalogue deals with specimens figured by Martin Lister in the *Historia Conchyliorum*, the Sloane numbers and modern names[1] being followed by Lister's original Latin descriptions, copied from the engraved title-pages and plates. The specimens are catalogued in the order in which they appeared in the original work. Reference to a later author indicates that the specimen is the original of the figure referred to by that author in his synonomy.

The iconographies of Lister and Petiver were perforce used by the early systematists when compiling their synonomies, and it therefore happens that a number of the originals of figures referred to by Linné, Gmelin, Born, and Lamarck are included in the series of figured specimens recently recognized among the Sloane shells.

According to Hanley (p. 7), Linné, with very few unrecorded exceptions, had examples of the species he described in his own private collection, at the time of publication of the tenth edition of the *Systema*, and from the frequent use by Lamarck of the phrase " mon cabinet " in his own work it is manifest that he was in a similar position. Opinions are therefore divided as to the precise status of the originals of the figures of Lister and Petiver, so often referred to by these authors, to supplement their somewhat meagre descriptions, but whatever the outcome of this difference of opinion, they may at least be regarded as type material of a secondary nature, which would become available in the event of total loss of the author's original specimens.

Lister's *Historia Conchyliorum* was divided into Books, Sections and Headings, approximating in some measure to the Orders, Families and Genera of recent times, but apart from the engraved preface (which deals entirely with remarks on land shells) and separate title pages to each book and section, there was no actual text, all sectional headings and specific descriptions being engraved on the individual plates with the figures. Lister was an excellent anatomist, and it was his intention to follow his volume of plates with anatomical descriptions of every family in its proper order. Had it been at all possible to carry out this plan, it is certain that the clumsy and artificial method he employed would have been greatly modified, but with all its faults, the *Historia* contained the first real attempt at a system of Conchology, and did much to bring that science into repute.

The work was produced at Lister's own expense (" Sumtibus authoris "), the plates being altered, re-numbered and sometimes replaced as his ideas developed; for this reason scarcely any two of the earlier copies are alike. The plates, which amount to 1,067 in the most perfect copies, run consecutively throughout the work, but the figures are numbered as species in the sections, each section commencing with species 1.

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[1] The nomenclature used throughout this paper is based on Thiele's *Handbuch*, 1931 and 1935.

The four books of the *Historia* are arranged and dated as follows:

Liber I.	1685.	Tab.	1 –105:	Cochleis Terrestribus.
Liber II.	1686.	,,	106–160:	Turbinibus et Bivalvibus, aquae dulcis.
Liber III.	1687.	,,	161–445:	Bivalvibus marinis.
Appendix.	1688.	,,	446–523:	Conchitis Lapidibus.
Liber IV.	1688.	,,	524–1025:	Vermiculi, Dentalia et Patellae. Polypis testaceis sive Nautilis. Cochleis marinis. Buccinis marinis.

Liber IV. 1692 (1697).
Appendix. Tab. 1026–1054: Buccinitis lapidibus.
Mantissa and Appendicis Synopsin. Tab. 1055–1059.

The last five plates seem to have been drawn by different artists, most of the specimens apparently being from collections other than those connected with the present account.

Specimens Figured by Martin Lister
in the
Historia Sive Synopsis Methodica Conchyliorum
1685–1692

Sloane No.

1906. **Strophochilus almeida** (Spix).

Liber 1. *Pars Prima, de Turbinibus Terrestribus.*
Sectio 1. de *Buccinis Terrestribus a sinistra dextrorsum tortilibus, laevibus, edentulis.*

Tab. 24, species 22. *idem cum proximé superiore ?*
Locality : Indiam Orientalem.

On pl. 23 Lister figured a fully-grown *Borus oblongus*, together with the large egg and recently emerged young shell, and it appears from the description that he thought his species 22 might be a further growth-stage of *Borus* ; but on this occasion Lister's usual good judgment was at fault, the shells there figured belonging to an entirely different species. The sculpture has been obliterated by polishing, a fact that is indicated effectively by the strong high-lights shown in the figures..

1963. **Acavus haemastoma** (Linné) var. *melanotragus* (Born). **figs. 4–8.**

Liber I. Sectio 6. de *Turbinibus terrestribus.*

Tab. 45, species 43. *cochlea latis et nigricantibus faciis donata.*

1993. **Ampullarius (Ceratodes) cornuarietis** (Linné). **figs. 9–12.**

Liber II. Sectio 3. de *Cochleis fluviatilibus compressis.*

Tab. 136, species 40. *cochlea maxima, compressa fasciata.*
Linn. Syst. Nat. ed. 10 (*Helix*), 1758, 771 ; ed. 12, 1767, 1244.

——?. **Pecten (Chlamys) squamosa** (Gmelin). **figs. 16–18.**

Liber III. *Pars prima, de bivalvibus imparibus testis.*
Sectio 1. Caput 4. *de Pectinibus inequaliter auritis, Dentatis.*

Sloane No.

Tab. 184, species 21. (No specific description.)
J. F. Gmelin in *Linn. Syst. Nat.*, ed. 13 (Ostrea), i, 1790, 3319.

The following description of this specimen was written by Lister in one of the Huddesford notes, and although it suits the shell admirably, it was not engraved on the plate:

184.21. "This is the toothless under shell of a Scallop with a flat rib; it is smooth and curiously marbled with a white and dark hair colour."

It is of interest to note that Lister was far in advance of his time in dividing the species of *Pecten* into groups, based on the equality or inequality of the valves and "ears" of the shells, and the attention given in his descriptions to the number of ribs and varying character of shell sculpture, is comparable with the importance attached to these same characters in the Pectinidae by present-day taxonomists.

1040. ***Placenta placenta*** (Linné).

Liber III. *Pars secunda, de bivalvibus paris testis.*
Sectio 1. Caput 2. de *Pectinibus binis apophysibus longis conjunctis.*

Tab. 225, species 60. *Pecten planus pellucidus.*

Tab. 226, fig. 61. *Idem ex interna parte.*
Linn. Syst. Nat. ed. 10 (*Anomia*), 1758, 703; ed. 12, 1767, 1154.

3722. ***Arca (Cunearca) brasiliana*** Lamarck.

Liber III. Sectio 2. Caput 1. de *Pectunculis polyleptoginglymis ex altera parte productiore.*

Tab. 230, species 64a. (No specific description.)

1387. ***Arca (Scapharca) granosa*** Linné.

Liber III. Sectio 2. Caput 2. de *Pectunculis polyleptoginglymis margine rotunda, striatis.*

Tab. 241, species 78. *Pectunculus striis magnis muricatis donatus.*

164. ***Panopea glycimeris*** (Born).

Liber III. Sectio 10. Caput 1. de *Chamae, ab altero tantum latere ferè naturaliter hiantibus.*

Tab. 414, species 258. *Chama glycymeris Aldrovandi.*
Locality: Maris hispanic mediter. (Lister).

I. Born, *Index Mus. Caesarei Vindobonensis* (*Mya*), 1778, 10.

Synonym: ***Panopea Aldrovandi*** Menard de la Groye.

Menard de la Groye, *Ann. Mus. Hist. Nat.* (*Paris*), **9**, 1807, 136.

Renamed by Menard when founding his genus *Panopea*, in honour of Aldrovandus, who was the first to describe and figure this shell in 1610. Born's own figure and references to Aldrovandus and Lister show his *Mya glycimeris* to have priority.

745. ***Pholas (Monothyra) orientalis*** Gmelin. **figs. 19–21.**

Liber III. Multivalvium. Sectio 1. de *Pholadibus*, i.e., *trium testarum conchis, cardinibus loculis quibusdam quasi perforatis.*

Tab. 431, species 274. *pholas albus, angustus, ad dimidium fere dorsi laevis.*
J. F. Gmelin in *Linn. Syst.*, ed. 13 (Pholas), i, 1790, 3216.

Sloane No.

1013. ***Patella granularis*** Linné. **fig. 29.**

Liber IV. de Buccinis Marinis. Sectio 1. Caput 3. de *Patellis vertice integro, striatis, margine quasi radiata.*

Tab. 536, species 15. *Patella subfusca, exiguis tuberculis, secundum strias, exasperata.*

Linn. Syst. Nat., ed. 10 (*Patella*), 1758, 782 ; ed. 12, 1767, 1258.

1105. ***Capulus (Krebsia) intortus*** Lamarck. **fig. 30.**

Liber IV. Sectio 1. Caput 5. de *Patellis vertice adunco, margine obliqua.*

Tab. 544, species 32. *Patella alba hirsuta striata, vertice intorto.*

Locality : Barbados (Lister).

3696. ***Natica lineata*** Lamarck.

Liber IV. Sectio 5. Caput 1. de *Cochleis Marinis apice brevi, umbilicatis, sinu aurito.*

Tab. 559, species 1. *Cochlea albida, crebris lineis subrufis transversim et undatim ductis depicta.*

Lamarck, *An. Sans. Vert. vi*, 1819, 201.

748. ***Natica canrena*** (Linné).

Liber IV. Sectio 5. Caput 1.

Tab. 560, species 4. *Cochlea fusca, cujus lineas spirales aliquot albicantes.*

2166. ***Natica cancellata*** Lamarck.

Liber IV. Sectio 5. Caput 1.

Tab. 561, species 8. (No specific description.)

749. ***Natica (Polynices) duplicata*** (Say).

Liber IV. Sectio 5. Caput 1.

Tab. 562, species 9. *Cochlea alba, umbilico, Puluinata margine circumdato, clavicula compressa.*

Locality : Campeche. Ind. Oce. (Lister).

1517. ***Natica millipunctata*** Lamarck.

Liber IV. Sectio 5. Caput 1.

Tab. 564, species 11. *Cochlea clavicula compressa, punctis rufis densi depicta.*

Lamarck, *An. Sans. Vert.*, vi, 1819, 200.

1584. ***Natica fulminea*** (Gmelin). **fig. 23.**

Liber IV. Sectio 5. Caput 2. de *Cochleis marinis apice brevi umbilico simplici.*

Tab. 567, species 17. *Cochlea clavicula compressa, lineis rufis undatis dense depicta.*

J. F. Gmelin in *Linn. Syst. Nat.*, ed. 13, i, 1790, 3672.

2701. ***Turbo (Lunella) porphyrites*** (Martyn).

Liber IV. Sectio 5. Caput 4. *Cochleis marinis, basi brevi, apice ad oris initium parum elato.*

Tab. 576, species 29. *Cochlea subviridis, umbilicata variegata.*

209. ***Turbo marmoratus*** Linné.

Liber IV. Sectio 5. Caput 6. de *Cochleis marinis, apice mediocriter producta, ore edentulo, laevibus.*

Tab. 587, species 46. (No specific description.)

Sloane No.

1108. ***Turritella exoleta*** (Linné). **figs. 13–15.**

Liber IV. Sectio 5. Caput 7. de *Cochleis marinis, apice mediocriter producta, striatis.*

Tab. 589, species 53. (No specific description.)

The Sloane shell reproduced on plate 5 was selected from several examples in the collection, previous to a sight of the Bodleian drawing and now reproduced above it on the same plate. From this it will be seen that the original, which agrees with the engraving as far as the penultimate whorl, was made from a damaged specimen lacking the full aperture.

A close study of Lister's plate reveals the fact that the damaged shell was originally engraved as shown in the drawing, the incomplete last whorl being later removed and completed from a more perfect specimen. The added portion is somewhat darker than the rest of the figure, also faint traces of the original shape are still discernible inside the aperture.

This engraving contains the work of both the artists, for the upper whorls are definitely the work of Susanna Lister, the alteration being carried out in the firmer style of Anna.

Although the Sloane specimen cannot now be claimed as the original of the figure, it has been allowed to remain as an example of the care taken by Lister to make his figures as perfect as possible. Several abandoned drawings, and even finished engravings, of imperfect specimens have been seen among the Bodleian and Radcliffe collections.

2659. ***Turritella variegata*** (Linné). **fig. 27.**

Liber IV. Sectio 5. Caput 9. de *Cochleis marinis, clavicula tenuis et longissima, laevibus.*

Tab. 593, species 61. *Cochlea variegata parvum aut leviter striata parte orbis superioris cujusq ; fortiore.*

Although this figure was not referred to by Linné in either the 10th or 12th edition of the *Systema*, Hanley (p. 350) states that "List. 593" was added to the synonymy in a copy of the 12th edition, corrected and enlarged by Linné for his projected 13th edition.

2243. ***Cypraea mauritiana*** Linné. **fig. 22.**

Liber IV. Sectio. 10. de *Rhombis sive strombis* (pars prima).
Caput 8. de *Rhombis edentulis, ore patulo, clavicula, compressa.*

Tab. 748, species 43. *Rhombus tenuis, ex fusco nebulatus, fasciatusq.*

This figure is of a juvenile shell which had not passed the thin, sharp-lipped stage of growth, and was therefore mistaken by Lister for a thin species of *Conus.*

2239. ***Conus (Chelyconus) janus*** Hwass. **fig. 25.**

Liber IV. Sectio 10 (pars secunda). *Rhombis cylindro pyramidalibus.*
Caput 5. de Rhombis fasciatis.

Tab. 785, species 33. *Rhombus ex rufo fasciatus et undatus, clavicula tenui et acuta.*

Hwass in J. G. Bruguière, *Ency. Meth.* (Vers), (2), 1792, 690.

1623. ***Conus (Leptoconus) generalis*** Linné.

Liber IV. Sectio 10 (pars secunda). Caput 5.

Tab. 786, species 35. Rhombus fasciatus et undatus clav. tenui.
Linn. Syst. Nat., ed. 12, 1767, 1166.

Sloane No.

1797. ***Cymbium tesselata*** Lamarck. **fig. 28.**

Liber IV. Sectio 11. de *Buccinis columella dentata.*
Caput. 1. de *Buccinis Persicis dictis.*

Tab. 798, species 4. *Buccinum P. fasciatum, clavicula muricibus coronata.*
Fig. 5. *An idem, corona detrita ?*

The original of fig. 5 is a juvenile specimen, in which Lister had imagined the spines to have been worn away, but actually they had only just commenced to form, the first being clearly shown at the suture. A fully grown shell with the full corona of spines was given in the previous plate (Tab. 797), with the description quoted above. The figure was copied, with acknowledgments, from Wenceslaus Hollar, who is said by Hind (p. 9) to have produced a series of thirty-eight plates of shells, probably from the collection of the Duke of Arundel, about 1650, and there is little doubt that Lister gained inspiration from Hollar's work.

—— ? ***Voluta (Aulica) scapha*** Gmelin. **figs. 31–32.**

Liber IV. Sectio 11. Caput 1.

Tab. 799, species 6. *Buccinum persicum undatum, clavicula, paululum exerta.*

J. F. Gmelin in *Linn. Syst. Nat.*, ed. 13, i, 1790, 3468 (*Voluta*).

Repeated examination of this shell has failed to reveal any trace of a Sloane number, but the excellence of the figure leaves no doubt whatever that it is the original specimen drawn by Anna Lister in 1688.

2374. ***Cymbium aethiopicum*** (Linné).

Liber IV. Sectio 11. Cap. 1.

Tab. 801, species 7b. (No specific description.)

J. F. Gmelin in *Linn. Syst. Nat.*, ed. 13, i, 1790, 3465 (*Voluta*).

This figure was included by Gmelin in his synonymy, in addition to those quoted by Linné, and agrees tolerably well with the figures of Rumphius and Argenville, usually considered by authors to conform to the original description.

1578. ***Lathyrus (Leucozonia) cingulifera*** (Lamarck). **fig. 24.**

Liber 4. Sectio 11. Caput 2. de *Buccinis Musicis dictis.*

Tab. 828, species 50. *Buccinum dentatum, rostratum, fuscum, clavicula muricata.*
Lamarck *An. Sans. Vert.* vii (*Turbinella*), 1822, 107.

3871. ***Rostellaria rectirostris*** Lamarck. **figs. 33–35.**

Liber IV. Sectio 12. de *Purpuris Bilinguibus.*
Caput. 1. de *Purpuribus Bilinguibus laevibus.*

Tab. 854, species 11. *Buccinum B. laeve, clavicula longissima, rostro tenui cornuto, labro muricato.*

Lamarck, *An. Sans. Vert.*, vii, 1822, 192.

2816. ***Strombus tricornis*** Lamarck.

Liber IV. Sectio 12. Caput 4. de *Buccinis Bilinguibus digitatis.*

Tab. 873, species 29. *Buccinum Bilinguibus majus, ex rufo radiatum, muricatum, unico digito in imo labro.*

Lamarck, *An. Sans Vert.*, vii, 1822, 201.

2276. ***Busycon pyrum*** (Dillyn). **fig. 26.**

Liber IV. Sectio 13. de *Buccinis ventricosis clavicula minus exerta.*
Caput. 1. de *Buccinis Ampullaceis, laevibus, aut certè minus asperis.*

Sloane No.

Tab. 877, species 1. (No specific description.)

This is one of the few shells to bear an original Courten label, which gives the locality of the specimen as "Bay of Campeche." This label must have been in existence in Lister's time, and it is curious that he did not add this locality to his plate.

—— ? ***Galeodes bucephala*** (Lamarck).

Liber IV. Sectio 13. Caput 1.

Tab. 885, species 6b. (No specific description.)

2303. ***Galeodes galeodes*** (Lamarck).

Liber IV. Sectio 13. Caput 1.

Tab. 895, species 15. *Buccinum A. grave, subfuscum, rostro leviter umbilicato sive sinuoso, muricatum, clavicula compressa.*

—— ? ***Strombus pugilis*** Linné.

Liber IV. Sectio 13. Caput 2. de *Buccinis ampullaceis muricatis.*

Tab. 906, species 26. (No specific description.)

Linn., *Syst. Nat.*, ed. 10, 1758, 744 ; ed. 12, 1767, 1209.

This shell is a monstrosity, in which the normally sharp spines are flattened and paddle-shaped ; references to the figure given by Lister head the Linnean synonymies in the tenth and twelfth editions of the *Systema*, in both of which the further references given are to figures of the normal form.

One explanation for the inclusion of the monstrosity may be that the name was given in the first place to Lister's figure, before normal examples had come to the author's notice, an explanation that is supported by the aptness of the name *pugilis* for the monstrosity rather than the normal form.

According to Hanley (p. 269), the reference to the figure was erased from Linné's corrected copy of the twelfth edition.

—— ? ***Murex (Homalocantha) rota*** Mawe.

Liber IV. Sectio 13. Caput 2.

Tab. 906, species 25. (No specific description.)

1481. ***Fasciolaria distans*** Lamarck. **figs. 36–38.**

Liber IV. Sectio 14. *Buccinis et Rostratis et clavicula productiore.*
Caput 1. de *Buccinis utrinq, productioribus, Laevibus.*

Tab. 910, species 1. *Buccinum Rostratum, ponderosum, laeve, raris lineis rufis circumdatum.*

Locality : Campeche (Lister).

Lamarck, *An. Sans. Vert.* vii, 1822, 119.

This shell stands in close relationship to Lamarck's type, as it was the only one referred to in his synonymy.

—— ? ***Fasciolaria gigantea*** Kiener.

Liber IV. Sectio 14. Caput 2. de *Buccinis utrinq, productioribus, striis densis et tenuioribus exasperatus.*

Tab. 931, species 26. *Buccinum R. duplicibus lineolis subfuscis circumdatum, inter sinus nodosum.*

There are two plates numbered 931, the first only being given a species number and description, and it has therefore been concluded that Lister considered the specimen on the second (folding) plate, showing a full-sized figure of *F. gigantea*, nineteen inches in length to be a large example of his species 26, (*Fasciolaria trapezium* Lamarck,) the description being intended for both figures.

Sloane No.

—— ? ***Bursa (Bufonariella) scrobiculator*** Linné.

Liber IV. Sectio 14. Caput 4. de *Buccinis utrinq productioribus striis Paucio-sibus, labro duplicato donatis.*

Tab. 943, species 39. *Buccinum R. labro duplicato, dentato, duplici serie sinum cavato.*

Linn. *Syst. Nat.*, ed. 12 (*Murex*), 1767, 1218.

3891. ***Murex (Muricantha) imperialis*** Swainson.

Liber IV. Sectio 14. Caput 4.

Tab. 944, species 39a. *Buccinum R. labro duplicato, dentato, duplici serie sinum cavato.*

143. ***Charonia lampas*** (Linné).

Liber IV. Sectio 15. de *Buccinis quibus rostrum Breve oris hiatum non excedens.*
Caput 2. de *Buccinis brevi rostris striatis.*

Tab. 960, species 13. *Buccinum brevi rostrum, maximum, ex rufo nebulatum, nodosum.*

Synonym ***Charonia nodiferum*** (Lamarck).
Lamarck, *An. Sans. Vert.* vii (*Triton*), 1822, 179.

3924. ***Cassis (Phalium) strigata*** Gmelin.

Liber IV. Sectio 15. Caput 7. de *Buccinis auritis, sive rostro Recurvo donatis, ventricosis.*

Tab. 1014, species 78. (No specific description.)

Synonym: ***Cassis (Phalium) zebra*** Lamarck.
Lamarck, *An. Sans. Vert.*, vii, 1822, 223.

In addition to the Sloane specimens already catalogued and recognized as those figured by Lister, there is a balance of some fifty numbered shells for which localities or donors' names do not appear in the Sloane catalogues, and as most of them are the first, and sometimes the only specimens entered under individual numbers, it is reasonably certain that they were from the collection of William Courten, bequeathed to Sloane in 1702. Certain of these shells bear a close resemblance to Lister's figures, and although they may not prove to be the actual specimens used, they can safely be regarded as contemporary with them. The series includes some of the oldest specimens in the collection, and it may be of interest to record a few of these in detail.

Sloane No.

3805. ***Ampullarius urceus*** (Müller).

O. F. Müller, *Verm.* 11, 174, sp. 360 (*Nerita*), 1774.

Liber II. Sectio 1. de *Cochleis Fluviatilibus.*

Tab. 125, species 25. *Cochlea maxima, è viridi nigricans.*

Lister's figure and description indicates that the black periostracum, characteristic of the species, was present in his specimen, but the Sloane shell is practically white, this thin covering having been peeled off or removed by cleaning. The figured shell has a thickened callosity on the columellar, but in other respects closely resembles the contemporary Sloane specimen. Müller gave the locality

Sloane No.

as "In Insulis Indiae," and noted that the species was edible. Dillwyn (p. 918) ends his description of this species with the remark that "it is generally known by the name of the *Cocoa Nut Snail.*" Alderson, who considered Lister's figures of *Ampullariidae* to be the earliest extant (p. vii), gives a wide range for this species in the West Indies and confirms Müller's note that *A. urceus* is edible, adding that the flesh of the animal is highly valued by the Indians as a restorative to sobriety following debauches of the piwarri drink (p. 11).

488. ***Isocardia humana*** (Linné).

Liber III. Sectio 3. Cap 3. de *Pectunculis laevibus Rostro Recurvo.*

Tab. 275, species 111. *Bucardia Aug. Scilla.*

Locality: Mar. Adriatico (Lister).

This species, formerly known as *Isocardia Cor* (L.), the Heart Cockle, was catalogued by Sloane as "the original shell of the *Bucardites,*" meaning no doubt that it was the living representative of the fossil forms, for which the name *Bucardia* had been used by Imperato as early as 1599. Augustino Scilla used the name in 1670 in his work on the comparison between recent and fossil shells, giving an excellent figure (tab.xvi, f, A.A.), and the description "Rarissima concha, quae bucardia appelata." References to both these early workers appear in the Sloane catalogue in the handwriting of James Empson. Lister gave two figures of this shell on his plate 275, the upper showing the interior of one valve, and the lower a complete specimen with the valves partly open, copied from Buonanni (fig. 88). The right valve of the Sloane specimen fits the upper figure precisely and may well be the original of Lister's plate.

1895. ***Borus oblongus*** (Müller).

Surinam (Sloane).

O. F. Müller. *Verm.*, 11, 86, sp. 284 (*Helix*), 1774.

Liber I. Sectio 1. de *Buccinis Terrestribus a sinistra dextrorsum tortilibus, laevibus, edentulis.*

Tab. 23, species 21. *Buccinum admodum crassum, ingens, quinq, orbium, laeviter purpurascens.*

Surinam (Lister). Oviparum.

From contemporary correspondence it appears that the specimens figured on Lister's plate were received by Courten from Surinam early in 1690, and passed on to Lister for illustration. The figures show an adult *B. oblongus*, with a thickened lip, together with the large egg, and a recently emerged young shell. The brief mention of the arrival of this novelty in letters passing between Lister, Ray and Lhwyd, during April and May, 1690, gives the impression that they were not a little puzzled by the size of the young shells received compared to the egg, but as the contents of Lister's letter is not known, the correct explanation of his problem must remain in doubt.

Lister apparently first mentioned the matter in a letter to Lhwyd dated 4th April, 1690, for in a postscript to his reply the following month (quoted by Gunther, 1945, p. 102) Lhwyd says: "I thank you for yr account of ye shell from Suranam. Its strange if ye young snayles be hard, & twise as big as ye shell immediately upon exclusion." In the interval between his receipt of Lister's letter and his reply Lhwyd included an account of these " snayles " in a letter to John Ray, who replied on 7th May. 1690, saying: " The snail you write off, received by Mr. Charlton from Surinam is very strange and remarkable. But how ye young snayle hatch't of ye egges should come to be twice so big as ye egges, I understand not." (Gunther, 1928, p. 207.) Lister's figure of the young shell is a little larger than the egg figured on the same plate, and it is quite possible that some of the eggs sent to Courten hatched out, and increased the size of their shells in transit.

Lister hastened to illustrate adult and juvenile shells in an early edition of the *Historia*, where the plate appears without the "Tab 6" added when it was re-issued as pl. 6 in his *Exercitatio Anotomica*, published in 1694. The altered plate, still bearing the " Tab. 6," was replaced in its former position, and appeared thus in the second and third (Huddesford) editions. In a copy of the work given by Lister to John Ray (B.M.435, f. 18) the plate appears without heading or number, a fact that provides further proof that most early copies varied in some respect, and confirms the opinion of Da Costa (1776, p. 35) that " a second edition was published at one time, which was soon after the completion of the first edition of 1692."

The specimen of *B. oblongus* figured by Lister appears from the thickened lip to be the variety *crassa* Albers, but the Sloane specimen is normal, a condition that does not affect the opinion that it is contemporary, and probably from the same sending as the figured specimen.

SECTION II.

This section deals with specimens now extant, figured and described by James Petiver from 1698 to 1712, a period which covered the majority of his contributions to the *Philosophical Transactions* (Journal of the Royal Society), *The Monthly Miscellany*, or *Memoirs for the Curious*, and his most important work, the *Gazophylacium Naturae et Artis*. Petiver's main interest seems to have been to obtain complete faunas and smaller localized collections, to be reported upon and kept intact thereafter, an object that is referred to with some warmth in an editorial printed in the *Transactions* for 1703 (pp. 1411–1412) announcing the completion of the first part, or " Decade," of the *Gazophylacium*, in which the writer (surely Petiver himself?) remarks that " one advantage will accrue, by publishing these things in *Decades*, that of preserving them entire, which are too often mangled, scatter'd, or absconded by change of hands." Unfortunately these fears were realized when Petiver's collections came into Sloane's possession in 1718, for although they were duly catalogued, all the specimens from these local collections were added to his own, piecemeal. This was partly due to Petiver's own carelessness in storing his specimens, for in the preface to the *Natural History of Jamaica* (vol. ii, p. 4) Sloane says that " Mr. Petiver put them in heaps, with sometimes small labels of paper, where they were many of them injured by Dust, Insects, Rain, etc.,"; similar confusion reigned among the papers dealing with the collections, and it was only by long and tedious work on the part of the new owner that the material was put in order and catalogued to his satisfaction.

As in the first section of the present catalogue, Petiver's figures and descriptions are arranged in order of publication, with localities and collectors' names, preceded by the Sloane number and modern name. Full Latin and English descriptions are only given for items from the *Gazophylacium.*

Specimens Figured by James Petiver
in the
Gazophylacium Naturae et Artis
1702–1709

Sloane No.

1183. ***Trochus radiatus*** Gmelin.

Pl. 20, fig. 4. *Trochus Indicus é rubro & pallido radiatus.*
Bay of Bengal. Mr. Stocker.

1108. ***Turritella exoleta*** (Linné).

Pl. 46, fig. 7. *Unicornu Nevisense, gyris cavis.*
"Hollow twirl'd nevis unicorn."

There is little doubt that, although Petiver had several specimens of this shell, the figure was copied from Lister's plate 589, sp. 53.

2814. ***Murex (Bolinus) brandaris*** Linné.

Pl. 68, fig. 12. *Murex mediter. aculeis rigidis brevibus.*

"The Mediterranean common thorny Murex. Frequent in the Levant on the European shores." *Mus. Pet. Cat.*, 150.

2166. ***Natica cancellata*** Lamarck.

Pl. 69, fig. 5. *Cochlea caro. rimis tessellatis undata.*

"Carolina Lattice furrowed, Welsh Pot shell." *Mus. Pet. Cat.*, 566.

1594. ***Strombus gigas*** Linné. (Juvenile.)

Pl. 74, fig. 1. *Murex Jam. fasciata nodosa.*

"Marbled Jamaica Murex, with knotty Twirls." *Mus. Pet. Cat.*, 579.

1105. ***Pileopsis intorta*** Lamarck.

Pl. 95, fig. 12. *Patella Barbadensis cancellata, rostro sinistro.*

"Small Latticed *Barbadoes Limpet* with a crooked nose tending to the right." *Mus. Pet. Cat.*, 582.

179. ***Conus (Rollus) geographus*** Linné.

Pl. 98, fig. 8. *Molucceus laevis, ex rufo alboque marmoratus.*

"Light Molucca Cloath-shell." *Mus. Pet. Cat.*, 244.

Linn. Syst. Nat., ed. 12 (*conus*), 1767, 1172.

——? ***Cymatium (Distortrix) anus*** (Linné).

Pl. 99, fig. 10. *Buccinum Luz. ore parvo valde rugoso & lacerto* (Luzon).

Pl. 74, fig. 9. "An elegant rugged shell with flat lips from Pulo Condore." *Mus. Pet. Cat.*, 238.

Linn. Syst. Nat., ed. 10, 1758, 750; ed. 12, 1767, 1218.

Petiver gave two figures of this shell, one good and easily recognized, the other poor and badly drawn, but not too badly for Linné to recognize, for both figures are quoted in the synonymies of this species in the 10th and 12th editions.

749. ***Natica (Polynices) didyma*** (Bolten).

Pl. 99, fig. 15. *Cochlea crassa, clavicula compressa.*

"Flat headed Luzone thick shell."

Sloane No.

2846. **Bursa rana** (Linné).

Pl. 100, fig. 12. *Murex alatus, circulis pulchrè asperis.*

"Borneo thorny curl'd *Murex*, brought from that island by Mr. John Rance, Surgeon." *Mus. Pet. Cat.*, 249.

Linn. Syst. Nat. (*Murex*), ed. 10, 1758, 748; ed. 12, 1767, 1216.

3696. **Natica lineata** Lamarck.

Pl. 101, fig. 9. *Cochlea auriculata fasciis castaneis pulchre obliquiis.*

Collectiana Petiveriana, iii, 297.

"Brought from Bombay by Mr. Alex Christie, Surgeon."

983. **Murex (Acupurpura) ternispina** Lamarck.

Pl. 101, fig. 16. *Buccinum ampullaceum rostratum striatum, triplici ordine muricum exasperatum.*

"From Bombay by Mr. Alex Christie."

1114. **Turritella duplicata** (Linné).

Pl. 102, fig. 20. "Among the Bombay shells collected by Mr. Alex Christie, Surgeon."

The description given by Petiver for this shell refers to *T. variegata*, copied in error from Lister, and noted as such by Sloane, in his own catalogue.

Specimens Described by James Petiver in the Philosophical Transactions *and* Memoirs for the Curious 1698–1708

Sloane No.

1982. **Polygyra albolabris** Say.

Maryland, Virginea. Rev. Hugh Jones.

Phil. Trans. No. 246, p. 395, species 3, 1698.
Mem. Cur., p. 97, species 3, 1708.

1810. **Bursa rhodostoma** (Reeve).

Island of Ascension. Dr. James Cunningham.

Phil. Trans., No. 255, p. 295, species 19, 1699.

2220. **Pirula ventricosus** (Sowerby).

Fort St. George. Mr. Edward Bulkley, Surgeon.
Phil. Trans., No. 271, p. 860, species 8, 1701.

1814. **Cerithium nodulosum** Bruguière.

Mauritius. Mr. Roche.
Unicornu *Mauritianum* fasciis nodosis & striatis.

Phil. Trans., No. 271, p. 860, species 10, 1701.

"Mr. *Roche* first brought me this from *Maurice* his *Island* (which *Seamen* commonly call the Morushias)."

2223. **Conus (Hermes) nussatella** Linné.

Fort St. George. Mr. Edward Bulkley, Surgeon.

"*Rhombus madraspatanica—The Caterpilla.*"

Phil. Trans., No. 271, p. 860, species 3, 1701.

Sloane No.

2121. ***Patella barbara*** Linné.
Moluccas. Sylvanus Landon & Rowleston Jacobs.
Phil. Trans., No. 274, p. 927, species 2, 1701.

1458. ***Conus (Chelyconus) testudinarius*** Broderip.
Moluccas. Landon & Jacobs.
"Light Molucca Cloath shell."
Phil. Trans., No. 274, p. 929, species 9, 1701.

48. ***Fasciolaria trapezium*** Lamarck.
Moluccas. Landon & Jacobs.
Phil. Trans., No. 274, p. 932, species 21, 1701.

115. ***Telescopium telescopium*** (Linné).
Bengal. Mr. Samuel Brown, Botanist.
Phil. Trans., No. 276, p. 1027, species 3, 1701.

2827. ***Murex (Muricantha) stainforthi*** Reeve.
Fort St. George. Mr. Edward Bulkley.
Phil. Trans., No. 276, p. 1029, species 40, 1701.

3925. ***Terebralia sulcatus*** (Born).
Bengal. Mr. Samuel Brown, Botanist.
Phil. Trans., No. 276, p. 1029, species 42, 1701.

3976. ***Arca (Argina) campechiensis*** Gmelin.
Bay of Campeche. Mr. Robert Rutherford.
Phil. Trans., No. 282, p. 1266, species 2, 1702.

3722. ***Arca (Cunearca) braziliana*** Lamarck.
Carolina. Mr. Robert Rutherford.
Phil. Trans., No. 299, p. 1953, species 5, 1705.

2646. ***Natica (Polynices) duplicata*** Say.
Carolina. Madame Williams.
Phil. Trans., No. 299, p. 1958, species 29, 1705.
Mem. Cur., g. 125, May, 1708.

750. ***Busycon carica*** (Gmelin).
Carolina. Madame Williams.
Phil. Trans., No. 299, p. 1958, species 32, 1705.
Mem. Cur., p. 191, July, 1708.

1805. ***Busycon carica*** (Gmelin).
Island of Triss. Mr. Fyfield, Surgeon.
Carolina. Madame Williams.
Phil. Trans., No. 299, p. 1959, species 35, 1705.
Mem. Cur., p. 190, July, 1708.

1584. ***Natica fulminea*** Lamarck.
Fort St. George. Mr. Fawcett.
Mem. Cur., p. 125, May, 1708.

Sloane No.

173. ***Achatina purpurea*** (Gmelin).
Cape Coast.
Mem. Cur., p. 126, May, 1708.

1787. ***Conus (Chelyconus) corona-civica*** Röding.
Barbados.
Mem. Cur., p. 158, April, 1708.

1387. ***Arca (Anodara) granosa*** Linné.
Malacca. Mr. Colvill, Surgeon.
" Warty India Barg Cockle."
Mem. Cur., p. 227, August, 1708.

1383. ***Arca (Navicula) bistrigata*** Dunker.
Borneo.
Mem. Cur., p. 227, August, 1708.

291. ***Tridacna imbricata*** Röding.
E. Indies.
" Large scallopt basin shell."
Mem. Cur., p. 256, August, 1708.

752. ***Gibbula magus*** (Linné).
Coast of England, Ireland & " Nova Zembla."
" Knotted Top Shell."
Mem. Cur., p. 286, August (?), 1708.

1108. ***Turritella exoletus*** (Linné).
Barbados. Mrs. Newport.
Mem. Cur., p. 126, May, 1708.

2659. ***Turritella variegatus*** (Linné).
Fort St. George. Mr. Fawcett.
Mem. Cur., p. 126, May, 1708.

1109. ***Turritella tortulosa*** Kiener.
Guinea.
Mem. Cur., p. 126, May, 1708.
Mus. Pet. Cat., p. 69, No. 736.

SECTION III

Specimens of the Shells Collected by Sir Hans Sloane During his Visit to Jamaica

1687–1689

Introductory notes

At the age of twenty-seven Dr. Hans Sloane set sail from Plymouth on 5th October 1687, in the service of the newly appointed Governor of Jamaica, the Duke of Albemarle, arriving safely at that island on 19th December in the same year. His declared intention when accepting the appointment as Physician to the Duke and his family was to learn and record as much about the medical resources and natural history of Jamaica as his free time from professional duties would allow. Several stops were made during the voyage, the longest being at Barbados, where Sloane spent ten profitable days collecting and making notes upon all he saw, both as doctor and naturalist. The Duke's vessel, the "Assistance," arrived at Port Royal, Jamaica, on 19th December, and from that time until embarking for the return voyage to England on 16th March, 1688–9, Dr. Sloane was continually busy giving medical attention to the European residents and natives of the island, and collecting sufficient natural history specimens to satisfy even his acquisitive tastes. He had many requests from John Ray and other botanists for information which would resolve their doubts about the descriptions of plants to be found in that part of America, and it is remarkable that he found time to attend to these requests, in addition to collecting much of the material to be used later in his voluminous *Natural History of Jamaica*.

The shells found on the shores and in the woodlands of the island were very fully described on pages 227 to 265 of Volume Two, which, for various reasons, did not appear until 1725, nearly thirty-six years after his return from the voyage, and twenty years after the publication of Volume One. During the long interval between Sloane's return and the completion of his work, both Lister and Petiver had figured and described many of the species, and in some instances the actual specimens, included in his chapters dealing with the "Testacea" or shells, and it was probably for this reason that only three of Sloane's large number of plates were devoted to them. Full references to the figures in these previous publications, with copies of the Latin descriptions of Lister and Petiver, were given for each species, followed by additional descriptions and locality notes in English.

In the following catalogue of the surviving specimens of Sir Hans Sloane's Jamaica shells, it has seemed expedient to shorten some of the lengthy English descriptions, unimportant passages deleted being indicated by a series of dots.

CHAPTER I. *Of* Land *and* River Snails

Sloane No.

1983. **Pleurodonte acuta** (Lamarck) var. **patina** C. B. Adams.

Species I, page 227. **fig. 39.**

Cochlea terrestris maxima, compressa, fusca, ore unico dente donato . . . Tab. 240, fig. 6.7. List Hist. Conch., Tab. 95, No. 96 ? *Cochlea Jamaicensis major compressa unidens*. Pet. Mem. Cur., anno 1708, p. 98, No. 12.

This shell was dark brown on the upper side, and lighter brown on the under, with one dark Belt or Fascia. It was about an Inch and a half in Diameter, compress'd, or a very little raised, had about six spiral circumvolutions, which had on them capillary oblique *Striae*. The mouth was a little purplish, and had in it one tooth. This varies in magnitude being found sometimes not over half the Bigness of this here describ'd.

I found it in Jamaica and brought it hence.

Sloane No.

1357. ***Pleurodonte acuta*** (Lamarck var. ***lucerna*** (Müll.).

Species II, page 227.

Eadam paulo minor alba, ore duobus dentibus donato . . . List Hist. Conch., Tab. 83, No. 87. *Cochlea Jamaicensis depressa bidens.* Pet. Gaz. Nat., Tab. 21, fig. 6, Cat. p. 576. Mem. Cur., anno 1708, No. 13.

This is about one third Part less and white, otherwise the same in every respect. I had it with the former.

2008. ***Pleurodonte acuta*** (Lamarck). Typical.

Species IV, p. 228.

Cochlea terrestris major, compressa, fusca, ore duobus dentibus donato.

This is not over half the bigness of the first, and hath two teeth in its Mouth, and is of a brown colour, otherways exactly like it. I had it with the others.

1695. ***Pleurodonte (Eurycratera) aspera*** (Férussac). **fig. 41.**

Species XI, p. 229.

Cochlea terrestris, maxima, albida, spiris parum elatis, ore tribus dentibus donato, repando . . . List Hist. Conch., Tab. 94, No. 95.

This is two Inches long, about an Inch and a half broad, it consists of three Circumvolutions or *Spirae,* more raised than any of the former, and they end in a large, wide, brownish Purple Mouth, in which are three teeth set close together. I found this snail in the Inland Woods where it was feeding on the leaves of trees.

CHAPTER II. *Of* Patellae *or* Limpets

—— ? ***Chiton (Acanthopleura) granulatus*** (Gmelin). **fig. 45.**

Species XI, page 233.

Patella oblonga, articulata, articulis extus, subfuscis, intus, e viridi caerulais . . . Pet. Gaz. Nat., Tab. 1, fig. 3.

This, which sticks to Rocks under the Sea Water in *Jamaica* after the manner of Limpets, is about two Inches long, one broad, made up of eight pieces or joints laid over one another. Each of the six middlemost Joints is striated two ways on each side, and smooth in the Top or Middle, of a dark brown Colour above, and bluish green underneath. The whole Margin is made up of a Skin, on which are many round rais'd Points, which are also on the first and last joints of the shell.

I found it of several Magnitudes, sticking to the Rocks under water, on the North side of the Island of *Jamaica* near Don Christopher's Cove. I have had joints of it from Nieves.

—— ? Species XII.

Patella oblonga, articulata, articulis extus albus, intus, e viridi fuscis.

It is the same in every Respect, only the colour on the outside is white and hath no *Striae,* whether naturally, or that a Matter precipitated from the Sea Water hath filled it up, I cannot determine.

These two descriptions refer to the same species, as Sloane seemed to realize, the lack of colour and striae in the latter being due to erosion and exposure to sun and air, a condition to which old specimens living just below highwater mark are particularly liable. The specimen illustrated has a small label attached, bearing the faint trace of a number, and the abbreviation " Jam " (Jamaica) in Sloane's writing.

Chapter V. *Of* Nerits

Sloane No.

1531. ***Nerita polita*** Linné. **fig. 42.**

Species I, page 237.

Nerita utrinque dentatus ore citrino, eleganter & undatim variegatus. List Hist. Conch., Tab. 600, No. 17.

This is more than an Inch long, half as broad, white, thick, and all over mark'd with undulated and variously shap'd *Fasciae* or Belts of dark brown colour. The mouth is tooth'd towards the *Volutae* and yellow . . . I found it in Jamaica with black and Purplish *Fasciae*, and have it with yellow and reddish *Fasciae*. It comes also from the Island of *Mauritius* near *Madagascar*.

Chapter VI. *Of* Sea-snails & Trochi

177. ***Trochus (Livona) pica*** (Linné). **fig. 48.**

Species V, page 240.

Trochus maximus, laevis, ex nigro maculatus. List Hist. Conch. Tab. 640, No. 30 . . . Petiver Mus., p. 88, 845. Gaz. Nat., Tab. 70, fig. 9. *The Large Barbadoes Magpie Top-Shell.* Mem. Cur., anno 1708, p. 126.

This shell is three Inches in diameter at the round Base . . . It is very solid and ponderous, smooth, within white and shining, as if silver'd over. The outside is of the same shiny colour, under a crust or outward skin marbled or variegated with white and black spots and streaks.

These are common in the Seas of *Jamaica*, and are eaten by some people, being of various Sizes. They are also found in the Seas near *Barbadoes*, *Nieves*, the River *Missisipi* and the *Bahama* Islands.

752. ***Trochus (Gibbula) magus*** (Linné). **fig. 44.**

Species VII, page 240.

Trochus parvus, striatis, undatim ex fusco dense radiatus. List Hist. Conch., Tab. 641, No. 31 . . . List *Hist. Animal. Angl.*, 166, Titulus 15.

I found this on the Shoars of *Jamaica*, and could observe no difference in it from that met with on the Coasts of *England*, *Scotland* and *Nova Zembla*, from all which Places I have had it brought me.

It appears that this Mediterranean and W. African species could only have been introduced in ballast, as no record of its occurrence in the West Indies has been found to date.

1551. ***Astrea (Astralium) longispina*** (Lamarck).

Species VIII, page 240–241.

Trochus planior pyramidalis, striatus, muricibus radiatim ad marginem. List. Hist. Conch., tab. 622 & 623, No. 9. Pet. Mem. Cur., anno 1708, p. 128, No. 19.

The diameter of this at the base . . . is an inch, 'tis half as high from the Base to the *Apex*. It hath several long *apices*, or extant points, along the *Margin* of the *Volutae*, is white and shining like Pearl, when the outward whitish rough skin is taken off.

I found this with other shells on the Coast of *Jamaica*.

1443. ***Astrea (Cyclocantha) calcar*** (Linné). **fig. 49.**

Species VIII, page 240–241.

This specimen was catalogued by Sloane as a variant of the previous species, probably confusing it with the earlier growth stages, which are much flatter than the mature shells.

Sloane No.

1444. ***Astraea (Lithopoma) imbricatum*** (Gmelin).

Species IX, page 241.

Trochus pyramidalis, albidus, striatus, muricatus. List Hist. Conch., Tab. 628, No. 14 . . . Pet. Mem. Cur., anno 1708, p. 128, No. 18 ?.

This is about an Inch in Diameter at the Base, about an Inch and a half high from the Base to the *Apex* or End of the circumvolutions, which are muricated for their whole length as the former, and have besides transverse Ridges and Furrows very frequently of a reddish white colour.

I found one of them on the Shoar of *Jamaica*, with a Hermit Crab in it.

Two specimens of this species are extant, the smaller being the one described above, collected by Sloane himself, and the other from Petiver's collection recorded in 1708. It is quite possible that the former is the shell figured by Lister, for the locality " Jamaica " is engraved on the plate.

1916, 1917. ***Astraea (Lithopoma) tuber*** (Linné).

Species X, page 241.

Trochus major variegatus, ex viridi rufoq ; basi laevi, striis maltum extantibus distinctus. List Hist. Conch., Tab. 646, No. 38 . . . Pet. Mem. Cur., anno 1708, p. 128, No. 20.

This is about an Inch and a half in diameter at the Base where it is smooth. It is about an Inch high from thence to the *Apex* or End of the *Volutae* which are all underneath like Mother of Pearl and shining, and has a few transverse Ribs and hollows between . . . It is cover'd all over with a white Crust and with Lines and Spots of reddish green and brown.

I found it plentifully on the Shores of the Island *Jamaica*.

CHAPTER VI. *Of* Buccina *whose* Spirae *are Short*

1787. ***Conus (Stephanoconus) coronacivica*** Röding **fig. 46.**

Species VII, page 243.

Rhombus Cylindro pyramidalis, brevis, minor, striatus, e fusco & albo variegatus, clavicula levita nodosa & mucronata.

This shell is more than an Inch long, a little more than half an Inch broad . . . The opening of the mouth is very narrow and straight, and there are extant points or blunt *apices* like knots on the Ends of the Circumvolutions . . . and the first and greatest Part of the shell is very pleasantly clouded with white and brown clouds variously shaped covering it, over which are discernable some *striae*.

I found it on the Shores of *Jamaica*.

CHAPTER VII. *Of* Buccina *whose* Spirae *are longer and smooth*

1482. ***Fasciolaria tulipa*** (Linné).

Species VII, page 245.

Buccinum rostratum grande, raris lineis circumdatum laeve, non nisi ima parte cujusq ; orbis striata. List Hist. Conch., Tab. 911, fig. 2. *Buccinum Jam. fasciatum tenue.* Pet. Mem. Cur., anno 1708, p. 190, No. 14.

This is about four Inches long, one and a half broad in the middle where broadest . . . 'tis all over smooth and of a purplish white colour, having large Spots of a brown colour all over the *Volutae*, and several brown Lines running spirally the same course, so that I am something doubtful if that from *Campeche* figur'd by Dr. *Lister ib. Tab.* 910 *fig.* 1 be not the same shell, only the marbled brown spots worn out and the lines remaining. It hath a wide, long Mouth without teeth.

I found these of several Magnitudes and Ages in the Seas adjoining to Jamaica, and have had it from the Island *Beata* and River *Mississipi.*

Lister, Petiver and Sloane had each noticed certain differences between the several examples of this shell known to them, Lister going so far as to figure and describe a smooth, pale form with widely spaced lines separately, but it was not until 1822 that Lamarck confirmed the suspicions of these early workers, and finally separated the shell now known as *Fasciolaria distans* from its congener *F. tulipa* (Linné).

CHAPTER VIII. *Of* Buccina *whose* Spirae *are long and muricated*

Sloane No.

1594. ***Strombus gigas*** Linné.

Species I, page 247–248.

Buccinum bilingue maximum, labro maxime patente purpureo, clavicula muricata. List Hist. Conch., Tab. 863, depict . . . Pet. Mem. Cur., anno 1708, p. 189, No. 1.

This is one of the largest Shells, very weighty and ponderous . . . The inside is extremely well polish'd and of a fine scarlet colour, and is made into Buttons being set in Gold or Silver . . .

I had it from *Jamaica.* It is also found near *Cartagena, in America,* and in great plenty on the Shores of the Leeward Part of *Barbados,* where they are eaten and taste like tripe. They likewise there make Lime of them.

Species II. *Idem minus.*

This is perhaps not differing but only the younger ones of the former. It is not striated nor of so fine a red Colour within, but otherwise the same. I had it with the former.

It appears from Sloane's description that the shell figured by Lister was in his own collection, but no fully-grown specimens bearing a catalogue number have yet been located, only a young one, bearing a particularly clear number and obviously belonging to his "Idem minus" quoted above.

1594. ***Strombus gigas*** Linné. *Juvenile.* **fig. 43.**

Species III, page 248.

Buccinum ampullaceum striatum, clavicula muricata, apertura leviter purpurascente. List Hist. Conch., Tab. 886, fig. 7 . . . 887, fig. 8, & 888, fig. 9. *Murex Jamaicensis, fasciata, nodosa.* Pet. Cat., p. 579. Mem. Cur., anno 1708, p. 189, No. 6. *Marbled Jamaica Murex with Knotty Twirls.* Gaz. Nat., Tab. 74, No. 1.

The Sloane and Petiver specimens described above are both early growth stages of the previous species; the marbled pattern frequently persists until the formation of the large spines, eventually becoming covered up by the succeeding whorls. All three of Lister's figures quoted above are various early stages of *S. gigas,* and apparently regarded by him as fully grown shells.

The fact that Sloane catalogued the marbled form under the same number as the later stages indicates that he suspected that they were all one and the same species.

Sloane No.

1130. ***Cerithium (Rhinoclavis) articulatum*** Adams & Reeve.

Species IV, page 248. **fig. 40.**

Buccinum recurvirostrum, claviculatum, striatum & asperum. List Hist. Conch., Tab. 1018, fig. 80.

This is about an inch long, half an Inch in Diameter near the mouth, where it taper'd to the End. It hath a round Mouth, in one Corner of which is a crooked Bill or *Rostrum* . . . *I found it on the Shores in Jamaica.*

1578. ***Lathyrus (Leucozonia) cingulifera*** (Lamarck).

Buccinum rostratum, dentatum, fuscum, spiris nodosis. List Hist. Conch., Tab. 828, No. 50. Pet. Mem. Cur., anno 1708, p. 158, No. 32.

This is about an Inch long . . . The *Spirae* are brown, striated, and have *Nodi*, or blunt *Apices* the Length and Duct of their Course . . . The mouth is narrow and tooth'd. It is sometimes twice as large.

I had it from *Jamaica*, *Barbados* and *St. Christophers.*

There are two specimens of this species in the collection, one of which is the shell figured by Lister on Tab. 828 of the "*Historia.*"

3891. ***Murex (Muricantha) imperialis*** Swainson.

Species IX, page 250.

Buccinum rostratum, labro duplicato, longius, striis latis & eminentibus distinctum, sinuosum. List Hist. Conch., Tab. mut., 944 depict.

This is about three Inches long, two broad in the Middle . . . and as high. 'Tis all over of a whitish colour, and thick set with extant Ridges, and between them deep furrows running the length of the *Volutae.*

I found this shell on the Shore of *Jamaica.*

Sloane appears to have been mistaken in his measurements, for the original shell described above is somewhat larger than stated, and still further enlarged in Lister's figure, but there is no doubt that it is the actual specimen used, Sloane's own abbreviations, "mut" and "depict" indicating that the shell had been lent for drawing.

192. ***Melongena melongena*** (Linné).

Species XIV, page 251.

Buccinum ampullaceum fasciatum, muricatum, labro patentiore. List Hist. Conch., Tab. 904. No. 24 . . . *Murex Jamaicensis multiformiter spinosus.* Pet. Mem. Cur., anno 1708, p. 189.

This is about three Inches long, about two broad and as high. 'Tis of a whitish colour, and hath many large brown Belts or *Fasciae* upon the first Circumvolution, which marks the greatest Part of the Shell, and is set with Rows of very large sharp Prickles . . .

I found them plentifully on the Shores of *Jamaica.*

In the latter part of his long description Sloane mentions that he obtained specimens of all sizes and colourings, with and without spines. The shell recovered from this series is a large, white specimen, mentioned as such in the catalogue.

200–204/226, 227. ***Murex (Chicoreus) ramosus*** Linné.

Species XV, page 251–252.

Purpura sive Murex Pelagius marmoreus. Fab. Col. p. lx. *Buccinum rostratum triplici ordine Muricum canaliculatorum horridum.* List Hist. Conch., Tab. 946, No. 41. *Murex Americanus valde rugosus.* Pet. Mem. Cur., anno 1708, p. 190, No. 8.

This is about four Inches long, very near three broad and high . . . The whole shell is white within and smooth. The mouth is sinuated, over which hollows are Prickles or *Murices*, with many of which there seems to have been no communication with the Fish in the Shell. The whole shell is of a reddish brown colour, and striated spirally. They are sometimes milk white, which may come from the loss of their outward skin, by polishing or accidents.

They are found of several Magnitudes on the Shores of *Jamaica* and I have had them from Nieves.

Several species of *Murex* were included under the catalogue numbers quoted above, thought by Sloane to be only variations of the same species from different localities. This error in identification was quite pardonable, for the species grouped together under the several numbers are even now difficult to separate, owing to their inconstancy of colour and formation of the spines.

Murex calcitrapa Lamarck and *M. sinensis* Reeve are both included in the series of specimens recovered, ranging, as stated by Sloane, from milk-white to a reddish-brown.

CHAPTER X. *Of* Bivalv'd *Shells*

Sloane No.

1419. ***Chama macerophylla*** Gmelin. **fig. 47.**

Species III, page 255.

Spondylus minor subrubra, tenuis, imbricatus, apice distorto, cavitate interiore auriculam referens. Tab. 241, fig. 4, 5, 6, 7.

The greater Valve of this Shell was about an Inch diameter, had an *Apex* very much distorted . . . The outward side of the shell was cover'd with extant Scales and hollow *Apices* of a reddish white colour. The smaller Valve was almost flat, and in the inside, resembled a human Ear . . .

I found it on the Shores of *Jamaica.*

Only a single upper valve of this species has been recovered, but it bears a remarkably clear number, written on the shell in ink that has scarcely faded since it was applied nearly two-hundred-and-fifty years ago.

1344. ***Arca (Scapharca) trapezia*** Deshayes.

Species VIII, page 257.

Pectunculus major, polyginglymus, hirsutus. Tab. 241, fig. 14, 15, 16. List Hist. Conch., Tab. 236, No. 70. *An idem* Tab. mut. 232, No. 66, depict.

This is a very large Cockle, about three Inches longways, and near as much in Breadth, the two valves are about two Inches in depth . . . The shell is join'd at the Hinge for about two Inches in Length by numerous small Teeth and Cavities. It is on the outside all cover'd over with a brown Membrane thick set with short Bristles or strong Hairs.

I found it in the Sea adjoining *Jamaica* where it is used for Food.

At the end of the *Introduction* to the second volume of the *Natural History of Jamaica*, the author included some miscellaneous plates, following on consecutively from a similar series at the end of the *Introduction* to the first volume. Plate XI of volume two was devoted to illustrations of certain gastropod shells sent to him from the Straits of Magellan, quite neatly engraved, but in all cases reversed, a fault that also occurs in the two plates of shells described in Book III of this second volume. It is curious that Sloane should have allowed this to happen, particularly in view of his long acquaintance with Lister's *Historia Conchyliorum*, a work in which such a mistake never occurs, the only sinistral shells figured being those that are naturally reversed, as in certain species of *Busycon* and *Amphidromus*.

A companion shell to figure 3 on introductory plate XI has been recovered, considerably larger than the figure, but having the same black periostracum, characteristic of the species, and the same white patches due to incrustation by a Polyzoan. Sloane does not mention the donor of these Magellan shells, but they were probably sent by Mr. Handisyd, whose name appears more than once in the relative catalogue entries.

Sloane No.

2931. ***Voluta (Cymbiola) ancilla*** (Solander).

Volume II, page viii, plate XI, figure 3.

Buccinum angustum laeve utrinque productius, dentatum ore patulo, foris nigricans, intus lutescens. E. Freto Magellanico.

The descriptions of the shells on Plate XI were engraved under the figures, and only mentioned collectively in the text.

Section IV

Several Localized Series of Shells collected between 1690 *and* 1726

This section includes series of shells, collated and published for the first time, collected by Dr. Engelbert Kaempfer 1690–92, William Dampier 1708–11, Mark Catesby 1722–26, and by several less-known, but enthusiastic donors to the collection from 1698 to 1726.

Kaempfer's shells were all catalogued by Sloane as from Japan, but some were obviously collected en route. Kaempfer gave a general account of the shells of Japan on pages 139–141 of his *History* of that country, published in 1727, in which he recorded the Japanese names and the use made of them for food and cultural purposes.

The precise localities of Dampier's shells were not recorded in the Sloane catalogues, but from Woodes Roger's account, the *Duke* and *Duchess*, the two vessels taking part in the voyage, called at many places where these specimens could have have been obtained. A few of the numerous shells collected by Mark Catesby during his visit to the Bahamas and Carolina from 1722–1726 have been recovered and listed here for the first time. Catesby dealt only briefly with the shells in his *Natural History of Carolina*, confining himself to a short account of shore collecting and the description of only four species, two terrestrial and two marine, identified from Lister's *Historia*, a work to which he felt he could add little that was new, and it was probably for this reason that he figured none of these shells in his own work. The first volume of this appeared in 1731, and the second in 1743, both profusely illustrated with fine colour plates of birds, mammals, fishes and plants.

No doubt Catesby's book had its full share of the errors prevailing at the time, but it seems unjust that a modern author (Peattie, 1937) should regard it as " medieval, credulous and slipshod " when comparing it with the much later work of the American ornithologist, Alexander Wilson, for Catesby's first volume was published at least thirty-five years before Wilson's birth, and at least sixty years before that melancholy but gifted artist arrived in America.

The less-known donors of shells during the period dealt with in this section, were mostly surgeons or sea captains associated with the East India Company, who contributed in no small degree to these early records from little-known quarters of the Globe.

In the following lists the same catalogue numbers will be seen to be attached to specimens collected by different people at different periods of time, a direct result of Sloane's method of multiple entries, but it is usually possible to judge the approximate date of the acquisition of a particular specimen by its position in the series entered under the one number, such apparently ingenuous remarks as " the same as the last only larger. P." being of great service when endeavouring to arrange specimens of the same species in date order.

For the sake of brevity sub-genera and sections have been omitted from the following lists.

SECTION IV (*a*).—*Specimens from North European Waters*

Sloane No.

1845. **Neptunea despectus** (Linné).

Three fine specimens of this species are in the collection, referred in the catalogue to Lister's plate 1057, dedicated to Dr. Witzen, and giving the locality " Maris Caspis," and it is safe to assume that the specimens may have been received by Sloane from Dr. Witzen via Lister.

1005. **Buccinum undatum** Linné.

Coasts of England and Ireland.

2447. **Ocinebra erinacea** (Linné).

Coast of England.

" Taken from the gizzard of a grey Sea plover. L."

The letter " L " following the entry probably indicates that the specimen was given to Sloane by Dr. Lister.

752. **Trochus (Gibbula) magus** (Linné).

Coast of England & Nova Zembla.

Ex Mari Adriatico & littoribus Ins. Corsicae. Whirl snail from Ireland.

(Sloane catalogue entry.)

SECTION IV (*b*).—*Specimens from the Mediterranean*

Sloane No.

748. P. **Natica hebraea** (Martyn).
Mediterranean.

749. **Natica josephinae** Risso.
Sicily. Sent by Phillipo Buonanni.

1089. **Astraea rugosa** (Linné).
Gibralter and Tangier.

Sloane No.

1016. **Patella ferruginea** Gmelin.
Mediterranean.

2121. **Patella ferruginea** Gmelin.
Gibralter and Palma. Mr. D. Frost.

2387. **Cerithium vulgatum** Bruguière.
Mediterranean.

2905. **Bursa gigantea** (Lamarck).
Mediterranean.

The following four specimens were sent by Mr. John Salvador Apothecary at Barcelona :

Sloane No.

164. **Panopea glycimeris** (Born).

1486. **Natica turtoni** Smith.

Sloane No.

195. **Murex brandaris** Linné.

1844. **Murex trunculus** Linné.

SECTION IV (*c*).—*Specimens from the South Atlantic*

Sloane No.

641. **Haliotis midae** Linné.
Cape of Good Hope. Dr. Stewart.

1025. **Haliotis rosaceus** Reeve.
Africa. Mr. Skeen.
Guinea. Dr. Shaphorst.

Sloane No.

1438. **Dorcasia globulus** (Müller).
Cape of Good Hope. Dr. Hermann.

216. **Conus prometheus** Linné.
Cape Lopez. Sir Thomas Bond.

Shells sent from the Straits of Magellan by Mr. Handisyd.

Sloane No.

2927. **Fissurella picta** (Gmelin).

Sloane No.

1385. **Arca grandis** Broderip & Sowerby.

2920. **Mytilus chorus** Molina.

This specimen of *Mytilus* which has been polished and the edge sharpened, was stated by Sloane to be used by the natives of Magellan as a razor.

SECTION IV (*d*).—*Specimens from the Caribbean*

Shells sent to James Petiver by Mrs. Newport from Barbados.

Sloane No.

1561. **Melongena morio** (Linné).

1841. **Cymatium clavator** (Lamarck).

1454. **Voluta musica** Linné.

Sloane No.

1561. **Fasciolaria aurantiaca** Lamarck.

1841. **Cymatium cynocephalus** (Lamarck).

1654. **Ostrea frons** Linné.

Sloane No.	
1344.	***Arca trapezia*** Deshayes. Jamaica. Mr. Carter.
2816.	***Strombus tricornis*** Lamarck. West Indies.

Sloane No.	
1348.	***Arca rufescens*** Reeve. West Indies. (Described by Petiver in the *Pterographia Americana*, 1712.)

Specimens collected by Mark Catesby in Carolina and the Bahama Islands 1722 to 1726.

Sloane No.	
1443.	***Astraea imbricata*** (Gmelin).
748.	***Natica canrena*** (Linné).
2815.	***Murex pomum*** Linné.
1482.	***Fasciolaria tulipa*** (Linné).

Sloane No.	
1443.	***Astraea longispina*** (Linné).
1487.	***Cymatium pileare*** (Lamarck).
1182.	***Trochus pica*** (Linné).
1894.	***Busycon canaliculata*** (Gmelin).

With the exception of the *Busycon* the above were all from the Bahamas.

SECTION IV (*e*).—*Specimens from the Indian Ocean*

Shells collected at Fort St. George (Madras) by Mr. Fawcett of the East India Company *Circa* 1705.

Sloane No.	
209.	***Turbo marmoratus*** Linné.
1296.	***Natica lineata*** (Linné).
1113.	***Turritella terebra*** (Linné).
1252.	***Solarium laevigata*** Lamarck.
1114.	***Turritella duplicata*** (Linné).
3342.	***Conus millipunctata*** Linné.
1467.	***Conus figulinus*** Linné.

Sloane No.	
1119.	***Rostellaria curvirostris*** Lamarck.
197.	***Cymatium femorale*** (Linné).
1841.	***Cymatium canaliferus*** (Lamarck).
1579.	***Murex trunculus*** Linné.
1119.	***Terebra muscaria*** Lamarck.
1561.	***Melongena morio*** Linné.
3849.	***Xancus pyrum*** (Linné).

1467. ***Conus eburneus*** Bruguère.

Madras shells sent by Rev. Dr. George Lewis and Mr. Eden *circa* 1705.

Sloane No.	
2827.	***Murex adustus*** Linné.
1499.	***Strombus aurisdianae*** Lamarck.

Sloane No.	
2832.	***Nucella coronata*** (Lamarck).
3830.	***Conus Stercomuscarum*** Linné.

Shells sent by Dr. Waldo from Surat.

Sloane No.	
1281.	***Voluta vespertilio*** Linné.
2846.	***Bursa rana*** Linné.
186.	***Pterocera rugosa*** Sowerby.

Sloane No.	
1294.	***Murex microphyllus*** Lamarck.
3696.	***Natica lineata*** Lamarck.
1333.	***Tridacna crocea*** Lamarck.

Miscellaneous Indian Ocean Specimens.

Sloane No.

1497. ***Monodonta labio*** (Linné).
Bombay.

1898. ***Terebralia palustris*** (Linné).
Mauritius.

1415. ***Tridacna imbricata*** Röding.
Malacca. Capt. Hill.

Sloane No.

1927. ***Turbo petholata*** Linné.
Pegu (L. Burma.)

1585. ***Turbo petholata*** Linné.
Java. Sir Thomas Bond.

1669. ***Glycimeris pectunculus*** Linné.
Bengal.

Specimens Collected by William Dampier during his Second Circumnavigation 1708 to 1711.

Sloane No.

1631. ***Ellobium aurismidae*** (Linné).

1516. ***Natica vitellus*** Lamarck.

Sloane No.

1358. ***Conus miles*** Linné.

1609. ***Conus magus*** Linné.

291. ***Tridacna imbricata*** Röding.

SECTION IV (*f*).—*Specimens from the Indo-Pacific*

Shells brought by Captain Goslin from China.

Sloane No.

1797. ***Cymbium tesselata*** (Lamarck).

587. ***Turbo intercostalis*** Menke.

1521. ***Cassis recurvirostrum*** Wood.

Sloane No.

3924. ***Cassis strigata*** Gmelin.

1486. ***Natica Chinensis*** Lamarck.

53. ***Distortrix cancellina*** (Linné).

From an Unknown Donor in Siam.

Sloane No.

1132. ***Vertagus Asperum*** (Linné).

2275. ***Pterocera rugosa*** Sowerby.

1246. ***Astraea latispina*** (Phillipi).

Sloane No.

1743. ***Sinum concavus*** Lamarck.

1244. ***Delphinula laciniata*** Lamarck.

1183. ***Trochus maculatus*** Linné.

Miscellaneous Indo-Pacific specimens.

Sloane No.

1457. ***Conus striatus*** Linné.
Borneo.

1456. ***Voluta vespertilio*** Linné.
Luzon. Mus. Pet. Cat. 247.

Sloane No.

2845. ***Bursa rana*** Linné.
Borneo.

1463. ***Conus Pennaceus*** Born.
Philippines. Father Camelli.

Sloane No.

1611. ***Terebellum subulatum*** Lamarck.

1612. Ditto Ditto variety.
"The speckled augur shell."

Specimens Collected by Dr. Engelbert Kaempfer during his Voyage to Japan from 1690 to 1692.

Japanese Species.

Sloane No.		*Sloane No.*	
1244.	***Angaria atratus*** (Reeve).	385.	***Murex haustellum*** Lamarck.
1516.	***Natica vitellus*** Lamarck.	983.	***Murex tenuispina*** Lamarck.
1518.	***Polynices mamilla*** (Linné).	150.	***Cassis glauca*** Linné.
749.	***Natica Didyma*** (Röding).	1116.	***Terebra maculata*** Lamarck.
1113.	***Turritella terebra*** (Linné).	2235.	***Conus capitaneus*** Linné.
1487.	***Cymatium pileare*** (Lamarck).	3845.	***Cymbium aethiopicum*** (Linné).
4029.	***Solenotellina violacea*** (Lamarck).		

Indo-Pacific Species Collected en route.

Sloane No.		*Sloane No.*	
1813.	***Vertagus martinianus*** Pfeiffer.	1113.	***Turritella duplicata*** (Linné).
1801.	***Strombus epidromis*** (Linné).	983.	***Murex trapa*** Röding.
1807.	***Lathyrus infundibulum*** (Lamarck).	3847.	***Xancus rapa*** (Lamarck).
2786.	***Conus arenatus*** Bruguère.		

Shells sent by Dr. James Cunningham from China between the Years 1698 and 1705 (–8).

Pulo Condore.		Chusan.	
Sloane No.		*Sloane No.*	
1113.	***Turritella terebra*** (Linné).	200.	***Murex calcitrapa*** Lamarck.
985.	***Murex haustellum*** Lamarck.	200.	***Murex sinensis*** Reeve.
983.	***Murex trapa*** Röding.	5191.	***Turbo cornutus*** Linné.
234.	***Turbo sparverius*** Linné.	5191.	***Turbo radiatus*** Linné.
234.	***Turbo argyrostoma*** Linné	2303.	***Galeodes galeodes*** (Lamarck).

Several of these species are duplicated in the collection, for Cunningham sent parcels to Sloane and Petiver, perhaps by different routes, in order to make sure that at least one arrived safely in England. His last letter, addressed jointly to them both, was received in 1708, but the sender failed to return to this country, and is presumed to have been killed or drowned at sea without trace.

SECTION V

This section is devoted to Sloane specimens figured and described by various authors from 1778 to 1849, and includes five original type-specimens. It is unfortunate that some of the Sloane numbers are missing, but the specimens are quite authentic and agree with the figures and descriptions cited.

Sloane No. **Holotype.**

886—887. ***Unio (Cristaria) plicatus*** (Leach). **B.M.1952.5.10.1.**

[China.]

W. E. Leach, *Zoological Miscellancy*, vol. 1, p. 120, Tab. 53, 1814.

Original description :

Dipsas Plicatus. **fig. 50.**

Habitat—? Mus. Brit.

Folded *Dipsas*.

> " *Shell greenish-luteous, internally pearly and irridescent, unequally winged ; the lower wing longitudinally, and the umbo transversely folded.*
>
> *The specimen from which the annexed figure was taken has fourteen pearls adhering to it, and is preserved in the British Museum ; it formed part of the collection of Sir Hans Sloane ; and is enumerated in the catalogue as a " Bohemian river horse-mussel, with pearls sticking to the shell."*
>
> *In the museum there are several fragments of the same species, with groups of pearls attached to them."*

On the previous page of the *Zoological Miscellany* (p. 119) Dr. Leach proposed the name *Dipsas* as a new genus, for the reception of his new species, a name subsequently found by authors to have been used by J. N. Laurenti in 1768 for a genus of reptiles.

When describing his new species Leach did not quote a Sloane catalogue number, and its absence leads to the conclusion that he may have taken his alleged catalogue entry from elsewhere. Two items having pearls attached were entered by Sloane under consecutive numbers, viz., No. 886, " A pearl muscle with 4 pearls in it," and No. 887, " A pearl muscle with 8 pearls in it." The two valves originally had fourteen " culture " pearls attached to them, six in the right valve and eight in the left, of which two are now missing from each valve, prominent scars showing their former position. The right valve, now believed to be Sloane No. 887, was figured by J. and A. van Rymsdyk in the *Museum Britannicum* (Tab. II, fig. 6) as far back as 1778, showing a cluster of six pearls, the two scars in the excellent engraving indicating that two pearls had been removed, or become otherwise detached, during the fifty or more years after being catalogued by Sloane. Dr. Leach quotes the precise words used by the authors of the *Museum Britannicum* in their description of the specimen figured (p. 5), and it is possible that he took this as valid, thus avoiding a tedious search of the Sloane catalogues for a more appropriate entry; the locality " Bohemia " is particularly unsuitable for this Asiatic species.

Sloane himself gave no locality for either of these two entries, but this need cause little concern, for it is now well known that he frequently received specimens from China, where *C. plicatus* has been used over a long period for the production of " culture " pearls for commercial and religious purposes (Jackson, p. 104 *et seq.*).

Measurements of holotype : *Length,* 170 mm. ; *height,* including wing, 120 mm. ; *thickness,* 55 mm.

Recorded localities : China (Fischer, 1887). Japan (Hirase, 1934).

The fragments of C. *plicatus* with groups of pearls attached to them, mentioned by Leach in his last paragraph, are still in existence.

Sloane No. ? **Voluta (Cymbiola) subnodosa** Leach. **Holotype.**

Straits of Magellan. **B.M. 1952.5.10.2.**

W. E. Leach, *Zoological Miscellany*, vol. i, p. 24, Tab. VIII, 1814.

Original description :

Voluta subnodosa

In Mus. Britannico, et Dom. Bullock.

SLIGHTLY-KNOTTED VOLUTE.

Shell luteous, inclining to fulvous, slightly striated, irregularly streaked with rust colour ; spire much produced, and simple ; body volution towards the apex, with a few slightly elevated knots.

The habitat of this very beautiful shell is not known. There is a specimen in the collection of Mr. Bullock, which he most kindly lent me for examination, and another in the British Museum.

In the absence of a Sloane number, this shell can only be surmised to have come to him from the Straits of Magellan, but the fact that it is the actual specimen described by Leach is substantiated by the statement that he knew of only two specimens, and it is only natural that he should choose the museum example for illustration and description. The specimen agrees quite well with Nodder's figure and may safely be regarded as the holotype of the *Voluta subnodosa* Leach, even though it should later prove to be from a collection other than Sloane.

Measurements of holotype : Length, 120 mm. ; *width, at widest part,* 63 mm. ; *Aperture,* from columellar to outer lip, 30 mm.

Recorded localities : Magellan Straits (Sowerby 1847). Argentine Coast ; Falkland Is. ; Tierra del Fuego. (Maxwell Smith 1942.)

Sloane No. ?

Strombus pugilis Linné.

W. E. Leach, *Zoological Miscellany*, vol. i, p. 52, Tab. XXII, 1814.

Original description :

Strombus Sloanii **Holotype.**

Habitat— ? Mus. Brit. **B.M. 1952.5.10.3.**

SLOANE'S ***STROMBUS.***

Basal whorl smooth ; base with longitudinal undulating grooves ; apex with elevated, compressed, quadrate processes ; superior volutions knotted, longitudinally lineated, the lines elevated.

This shell has been considered as an accidental variety of Strombus pugilis *; but the distinctions between them are so strong, that I cannot accede to the opinion, although it is entertained by some eminent conchologists. The processes on the apex of the first volution, are for the most part marked beneath with a deeply-impressed groove, and those situated nearest the base, are slightly hollowed on the inner side of the shell.*

This shell, figured by Lister in 1688, has already been mentioned in the first section of this catalogue, from which it will be seen that Linné had already referred this actual shell to his *Strombus pugilis* by quoting Lister's figure. Leach does not seem to have been aware of this, otherwise he would not perhaps have been so obtuse as to describe an acknowledged monstrosity as a new species. Dillwyn (1817) considered that a single immature specimen was insufficient for the creation of a new species, and Hanley (1855), who was aware of the existence of this specimen, condemned the designation as erroneous.

Sloane No. ?

Murex (Homalocantha) rota Mawe.

J. and A. van Rymsdyk, *Museum Britannicum*, plate xxvii, fig. 2, p. 70 (2), 1778.

This immature specimen was figured by Lister in 1688 (Tab. 906, fig. 25) without any description, and appears to have been regarded as a rare specimen ninety years later, when it was described in the above work as " one of the most elegant of shells "; the description goes on to say that " the body of the shell is white, of an ash-colour, and the protuberances are of a brownish black, either all over, or at least at the extremity. I copied Nature as I saw it, and I am sorry my shell has none of this black, owing to these shells being frequently bleached." The author need not have been distressed by the absence of colour in his shell, for the brownish black mentioned is a feature of *Murex scorpio* Linné, to which the typically and constantly white *M. rota* is closely allied, but sufficiently characteristic to be separated.

The figure given in the above quoted plate is not at first recognizable as the Sloane shell ; the engraver has fallen into the usual trap and forgotten to reverse the drawing, and has made the shading far too heavy for a perfectly white shell. These are serious faults for artists of whom it was said in the preface to the book, " every Nerve has been stretched to shew their Talents and good judgement."

Sloane No.

2931. ***Voluta (Cymbiola) ancilla*** Solander.

W. Wood, *Index Testaceologicus*, Supplement, p. 10, pl. 3, f. 2, 1828 (*Voluta gracilis*).

Although Wood's figure is so small, it is unmistakably the Sloane specimen, by reason of a fault in the shell causing a pale band to appear round the upper part of the body whorl, which has been faithfully indicated in the figure. The specimen, although lacking the Sloane number, bears a small label believed to be in William Courten's hand, and similar to that found attached to the specimen of *Busycon pyrum* recorded in Section I of this catalogue. Wood states the locality to be unknown, but the species had already been correctly recorded from the Straits of Magellan by Sloane in 1725 (see Section III, Sloane No. 2931).

Sloane No.

2566. ***Solen sloanii*** Hanley. **Holotype.**

Pegu, Lower Burma. **B.M. 1952.5.13.1.**

J. E. Gray in S. Hanley Illustrated Edition of *Lamarck's Shells* (1), p. 21 pl. 1, fig. 59, 1842.

Original description :

Gray in Brit. Mus. *Linear, straight, narrow, fragile, pellucid, rather broader and obtusely rounded anteriorly spotted with tawny brown ; a sharp prominent tooth in one valve, the vestiges of one in the other.* ½ . . . 3.

Hanley states that the name adopted for this shell was a manuscript one, found on the tablet in the British Museum, and attributed to J. E. Gray. The above work was abandoned in its intended form after 1842, and rearranged as an *Appendix* to Wood's *Index Testaceologicus*, the plates and figures being re-numbered to form a sequence to the eight supplementary plates of that work. *Solen sloanii* becomes fig. 18 on plate 11 of the *Appendix*, which finally appeared in 1856 with the title of *An Illustrated and Descriptive Catalogue of Bivalve Shells.*

Measurements of Holotype : Length, 70 mm. ; *height,* 12 mm. ; *thickness,* 8 mm.

The locality " Pegu " is that recorded for the specimen in the Sloane catalogue entry No. 2566.

Sloane No. ?

Ommastrephes sloanii Gray. **Syntype.**

B.M.1952.5.10.5.

J. E. Gray, *Catalogue of the Mollusca in the Collection of the British Museum. Part* 1 *: Cephalopoda antepedia,* p. 61 (5), 1849.

This specimen is recorded with some misgiving, for in his original description Gray mentions two specimens, which he lists as a. and b.? respectively:

a. New Zealand, Waitemata. Small. In spirits. Presented by Dr. Sinclair, M.D.

b.? Var.? In spirits, adult. Mus. Sloane. Fin nearly half the length of the body. Cycria *Leach,* MS. 1817.

c. Shell of b. broken, dry; taken out by Dr. Leach.

The soft parts of neither a. nor b. have yet been recognized from the several unlocalized and dissected Ommastrephids among the older spirit specimens, and in view of Gray's own doubts on the matter, it is advisable to merely record the existence of this fragmentary syntype.

Sloane No. ?

Sepioteuthis sloanii Gray. **Syntype.**

West Indies. **B.M. 1952.5.10.4 a.b.**

J. E. Gray, *Catalogue of the Mollusca in the Collection of the British Museum. Part* 1 *: Cephalopoda antepedia,* pp. 81–82 (7), 1849.

This specimen (originally described by Dr. Leach as *Loligo Sloanii*, in manuscript 1817) is far more satisfactory than the preceding, for the practically undamaged gladius and complete soft parts are both in existence, and agree with the description published by Gray.

Again two specimens were chosen for description, listed by Gray as follows:

a. Honduras. In spirits.
b. The shell of a. c. Loc? In spirits. Mus. Sloane.
d. Shell of c., dry. Taken out by Dr. Leach.

Sepioteuthis sloanii Gray, as already noted, is now considered by authors to be synonymous with the endemic Carribean species *S. sepioidea* Blainville, the type-species of his genus *Sepioteuthis*, described in 1824.

Measurements of dry gladius : Length, 100 mm. ; *width* at the widest part, 12 mm.

There is little doubt that there are other Sloane specimens still to be found among the older spirit material, but changing of spirit and replacement or loss of original labels makes identification extremely difficult.

3. SUMMARY

During 1950 to 1952 over four hundred specimens, forming part of the Sloane Shell Collection, have been rediscovered in the mollusca collections of the British Museum (Natural History).

Forty shells are the original specimens figured and described by Martin Lister in the *Historia Conchyliorum*, published between 1685 and 1692–(7).

Thirteen shells are the originals figured and described by James Petiver in the *Gazophylacium Naturae* (1702–1709), by whom twenty-six others in the collection were described in the *Memoirs for the Curious* (1707–1709) and the *Philosophical Transactions* 1698 to 1712.

Five specimens were among those brought back by William Dampier from the voyage round the world in 1708–11, and given by him to Sir Hans Sloane.

Twenty-five specimens are those described by Sir Hans Sloane in his *Natural History of Jamaica* (1725), brought back by him from that Island in 1689.

A number of Lister's and Petiver's figured specimens now extant were referred to by Linné (1758 and 1767) Born (1778), Gmelin (1790) and Lamarck (1819–22) in their respective synonymies.

Three specimens are the originals figured by J. and A. van Rymsdyk in the *Museum Britannicum* (1778).

Five are holotypes described by W. E. Leach (1814–17) and J. E. Gray (1849).

Sloane specimens have also been referred to or figured by E. M. da Costa (1771); J. G. Children (1823–5); W. Wood (1828); and J. E. Gray (1834).

Several of the original drawings made by Susanna and Anna Lister for the *Historia Conchyliorum* have been photographed and reproduced for comparison with the actual specimens and final engravings.

4. REFERENCES

ALDERSON, E. G. 1924. *Studies in Ampullaria.* xx + 99 pp.; 19 pls. Cambridge. [Fifteen copies only coloured.]

BORN, I. VON. 1778. *Index Rerum Naturalium Musei Caesarei Vindobonensis.* Pars. 1. Testacea. xlii + 458 [78] pp.; 1 pl. Vindobonae.

—— 1780. *Testacea Musei Caesarei Vindobonensis.* xxxvi + 442 [15] pp.; 18 pls. Vindobonae. fol.

BRITISH MUSEUM (NATURAL HISTORY). 1906. *The History of the Collections contained in the Natural History Departments of the British Museum,* **2**; 782 pp. The Trustees: London.

—— 1912. *Ibid.,* **2**; *Appendix.* 109 pp. London.

—— 1931. *A Short History of the Collections.* 62 pp. London.

—— 1931. *General Guide to the Exhibition Galleries.* 249 pp; 20 illus. London.

BUONANNI, F. 1681. *Ricreatione dell' occhio e della mente nell' osservation delle Chiocciole, etc.* 4 parts. xiv + 384 [15] pp.; 109 pls.; Engr. titles. Roma. 4°.

CATESBY, M. 1731–1743. *The Natural History of Carolina, Florida and the Bahama Islands; containing the figures of Birds, Beasts, Fishes, Serpents, Insects and Plants, etc.* 2 vols. London. fol.

—— 1771. —— [Third edition.] Revised by Mr. [G.] Edwards. 2 vols. London. fol.

CHILDREN, J. G. 1822–1824. Lamarck's Genera of Shells. *Quarterly Journal of Science, Literature and the Arts* (*Philosophical Magazine*), **14**, **15**, **16**, 1822–23–24. 10 pls., 6 parts.

COSTA, E. M. DA. 1776. *Elements of Conchology, or an Introduction to the Knowledge of Shells.* vi + 318 pp.; 7 pls. London.

—— (& HUMPHREYS, G.) 1771. *Conchology or Natural History of Shells, etc.* ii + 26 pp.; 12 pls. (parts I–VI.) London. [*All published.*] fol.

DAMPIER, W. 1699 (1859). *Account of . . . Observations . . . on the Coast of New Holland . . . being an extract from* " A Voyage to New Holland." *Hakluyt Society,* **25** (1859): 134–164.

DILLWYN, L. W. 1817. *A Descriptive Catalogue of Recent Shells.* 2 vols., xii + 1092 pp. London.

EDWARDS, G. 1758–1764. *Gleanings of Natural History.* 3 parts. xxxv + vii + 347 pp.; 151 pls. London. 4°.

EVELYN, J. *The Diary of John Evelyn Esquire, F.R.S.* Edited by William Bray. xx + 809 pp. London (Simpkin Marshall, n.d.).

FOX, H. 1919. *Dr. John Fothergill and His Friends.* xxiv + 434 pp.; 13 pls. London.

GMELIN, J. F. 1790. *C. a Linné . . . Systema Naturae . . . Editio decima tertia . . . cura J. F. Gmelin.* 1788–93, **1** (6): 3021–3910. Lipsiae.

GRAY, J. E. 1849. *Catalogue of the Mollusca in the Collection of the British Museum.* Part 1: Cephalopoda antepedia. viii + 164 pp. London.

GRIFFITH, E., & PIDGEON, E. 1834. *The Animal Kingdom . . . by the Baron Cuvier, with supplementary additions to each order.* Vol. **12**: The Mollusca and Radiata. 601 pp.; 60 pls. London.

GROYE, M. DE LA. 1807. Mémoire sur un nouveau genre de Coquille de la famille des Solénoides. *Ann. Mus. Hist. Nat.,* **9**: 131–139; 1 pl. Paris.

GUNTHER, R. W. T. 1925. *Early Science in Oxford,* **3**: 1. Biological Sciences. 2. Biological Collections. xii + 564 pp.; 64 pls., 73 text-figs. Oxford.

—— 1928. *Further Correspondence of John Ray.* xxiv + 332 pp.; 2 pls., 6 text-figs. London (Ray Soc.).

—— 1945. *Early Science in Oxford*: **14**, Life and Letters of Edward Lhwyd. xv + 576 pp.; 5 pls., 43 text-figs. Oxford.

Hanley, S. 1842–1846. *An Illustrated, Enlarged, and English edition of Lamarck's Species of Shells.* 224 pp. ; 3 pls. London.

—— 1855. *Ipsa Linnaei Conchylia. The Shells of Linnaeus, determined from his manuscripts and collection. . . . Also, an exact reprint of the Vermes Testacea of the " Systema Naturae " and " Mantissa."* 556 pp. ; 6 pls. London.

—— 1842–56. *An Illustrated and Descriptive Catalogue of Recent Bivalve Shells with* 960 *figures by Wood and Sowerby, forming an Appendix to the Index Testaceologicus.* xviii + 392 pp. ; 24 pls. London.

Herrick, F. H. 1938. *Audubon the Naturalist.* edit. 2. xc + 500 pp. ; 114 pls. (Two vols. in one.) New York & London.

Hind, A. M. 1922. *Wenceslaus Hollar and his Views of London and Windsor in the Seventeenth Century.* xiv + 92 pp. ; 64 pls. and portrait. London.

Hwass, 1792. [in J. G. Bruguière] *Encyclopédie Méthodique.* Histoire Naturelle des Vers. *Conus* : 586–757.

Imperato, F. 1599. *Dell' Historia Naturale, etc.* xxiv + 791 pp. ; 1 pl., text figs. Napoli. fol.

Jackson, J. W. 1917. Shells as evidence of the migrations of early culture. *Pub. Univ. Manchester,* **112.** xxviii + 216 pp. ; 13 text-figs.

Johnston, G. 1850. *An Introduction to Conchology, etc.* xvi + 614 pp. ; 102 text-figs. London.

Kaempfer, E. 1727. *The History of Japan. . . .* translated by J. G. Scheuchzer, *etc.* [x] lii, [iv], 612, 75, 11 pp. ; 45 pls. London. fol.

Knorr, W. 1760–1773. *Les délices des yeux et de l'esprit, ou collection générale . . . de Coquillages, etc.* 3 vols. illust. col. Nurnberg. 4°.

Lamarck, J. B. P. A. de M. de. 1815–1822. *Histoire Naturelle des Animaux Sans Vertèbres, présentant les caractères généraux et particuliers de ces Animaux, etc.* 7 vols. (Mollusques, vols. **5, 6, 7.**) Paris.

Lankester, Edw. 1848. *Correspondence of John Ray.* xvi + 502 pp. ; 2 pls. London (Ray Soc.).

Leach, W. E. 1814–1817. *The Zoological Miscellany ; being descriptions of new, or interesting animals . . . illustrated with coloured figures by R. P. Nodder.* 3 vols. London. 4°.

Linnaeus, C. 1758. *Systema Naturae . . . Editio decima, reformata.* Tom. 1. 824 pp. Holmiae.

Lister, M. 1685–1692(97). *Historiae sive Synopsis methodicae Conchyliorum . . . liber . . . S. et A. Lister figuras pin.* 6 pt. [in 2 vols.] ; 1057 pls. Londini. fol.
(See also *Catalogue of Library, Brit. Mus. (Nat. Hist.),* **3,** 1155.)

—— 1770. *Editio Altera. Recensuit . . . G. Huddesford.* iv + 6 (notes) + 7 (Exp. Anatomical pls.) ; 1081 pls. Oxonii. fol.

—— 1694. *Exercitatio Anatomica. In qua de Cochleis, maximè Terrestribus & Limacibus, agitur.* xi + 208 pp. ; 8 pls. Londini.

Macgillivray, W. 1834. *Lives of Eminent Zoologists, from Aristotle to Linnaeus.* 391 pp. ; 1 pl. Edinburgh. (*Edinburgh Cabinet Library,* **16.**)

Maton, G., & Rackett, T. 1803. An historical account of Testaceological writers. *Trans. Linn. Soc.* **7** : 119–244.

Müller, O. F. 1773–1774. *Vermium Terrestrium et Fluviatilium . . . Historia, etc.* 2 vols. Havniae & Lipsiae. 4°.

Nicholson, H. A. 1886. *Natural History, its rise and progress in Britain, etc.* vi + 312 pp. ; 10 portraits, 7 text-figs. London & Edinburgh.

Petiver, J. 1695–1703. *Musei Petiveriani, centuria prima (Secunda-decima). Rariora Naturae Continens.* 93 [3] pp. ; 2 pls. London.

—— 1696–1705. *Philosophical Transactions.* [Articles in vols. **19, 20, 21, 22** and **24.**]

—— 1764. *Gazophylacium, etc.* 3 vols. London.

Petiver, J. 1712. *Pteri-graphia Americana, icones continens* . . . 3 pp.; 20 pls. London.

—— 1707–1709. *The Monthly Miscellany; or Memoirs for the Curious.* Ed. by J. Petiver. 3 vols. London.

—— 1710. —— (re-issue Jan. 1707–Dec. 1708, in 2 vols). London.

[For full list of Petiver's works see *Catalogue of Library, British Museum* (*Nat. Hist.*), **4**: 1557–8.]

Rogers, Woodes. 1712. *A Voyage round the World* . . . *in 1708–11.* [in] R. Kerr [etc.] *A General Collection of Voyages and Travels, etc.*, 1824, **10** : 337–388. London.

Rymsdyk, J., & A. van. 1778. *Museum Britannicum, being an Exhibition of a Great Variety of Antiquities and Natural Curiosities, belonging to* . . . *the British Museum, etc.* xvi + 84; 30 pls. London. fol.

—— 1791. —— *Second edition, revised* . . . *by P. Boyle.* 2 [7], xvii + 88 pp.; 30 pls. London. fol.

Scilla, A. 1759. *De Corporibus Marinis Lapidescentibus* . . . *addita dissertatione F. Columnae De Glossopetris. Editio Altera emendatior.* viii + 82 pp.; 32 pls. Romae. 4°.

Shaw, G. 1789–1813. *The Naturalist's Miscellany; or Coloured Figures of Natural Objects; drawn and described* . . . *from Nature* . . . *the figures by F. P. Nodder* (*and afterwards*) *E. and R. P. Nodder.* 24 vols. Col. pls. London. 4°.

Sloane, H. 1707–1725. *A Voyage to the Islands Madera, Barbados, Nieves, S. Christophers and Jamaica, with the Natural History of the Herbs and Trees, Four-footed Beasts, Fishes, Birds, Insects, Reptiles, &c., of the last of those islands* . . . 2 vols. 285 pls. London. fol.

Swainson, W. 1834. *A Preliminary Discourse on the Study of Natural History.* (*Lardner's Cabinet Cyclopaedia*, vol. **59**.) viii + 454 pp.; Eng. title. London.

—— 1840. *Taxidermy; with the biography of Zoologists, etc.* (*Lardner's Cabinet Cyclopaedia*, vol. **126**.) 392 pp.; text-fig. Engr. title. London.

Thiele, J. 1931–1935. *Handbuch der Systematischen Weichtierkunde.* 2 Bde. vi + 778; v + 779–1154 pp. illust. Jena.

Wilkins, G. L. 1952. The shell collections of Sir Hans Sloane, Bart.; with digressions upon the books and people connected with them. *J. Conch.*, **23** : 247–259; 2 pls.

Wood, W. 1828. *Index Testaceologicus; or a Catalogue of Shells British and Foreign* . . . *Supplement.* iv + 59 pp.; 8 col. pls. (480 figs.). London.

5. ACKNOWLEDGMENTS

Thanks are due to Dr. H. W. Parker for extra facilities to carry out this work; to the Librarian of the Bodleian Library, Oxford, for permission to reproduce Martin Lister's original drawings; to Dr. A. J. Cain of the Department of Zoology and Comparative Anatomy, University Museum, Oxford, and his assistant Mr. J. Hull for cordial help in the preliminary search for original Lister material in the University Museum collections; to Dr. W. J. Rees for his kindly advice and encouragement, and to Sir Walter Gurner for elucidation of certain passages in the Latin preface to the *Historia Conchyliorum*.

A particular word of thanks is due to Mr. J. V. Brown of the photographic staff of the British Museum (Natural History) for his care in arranging the figured Sloane shells in their original positions.

PRESENTED
6 JUN 1953

EXPLANATION OF PLATES

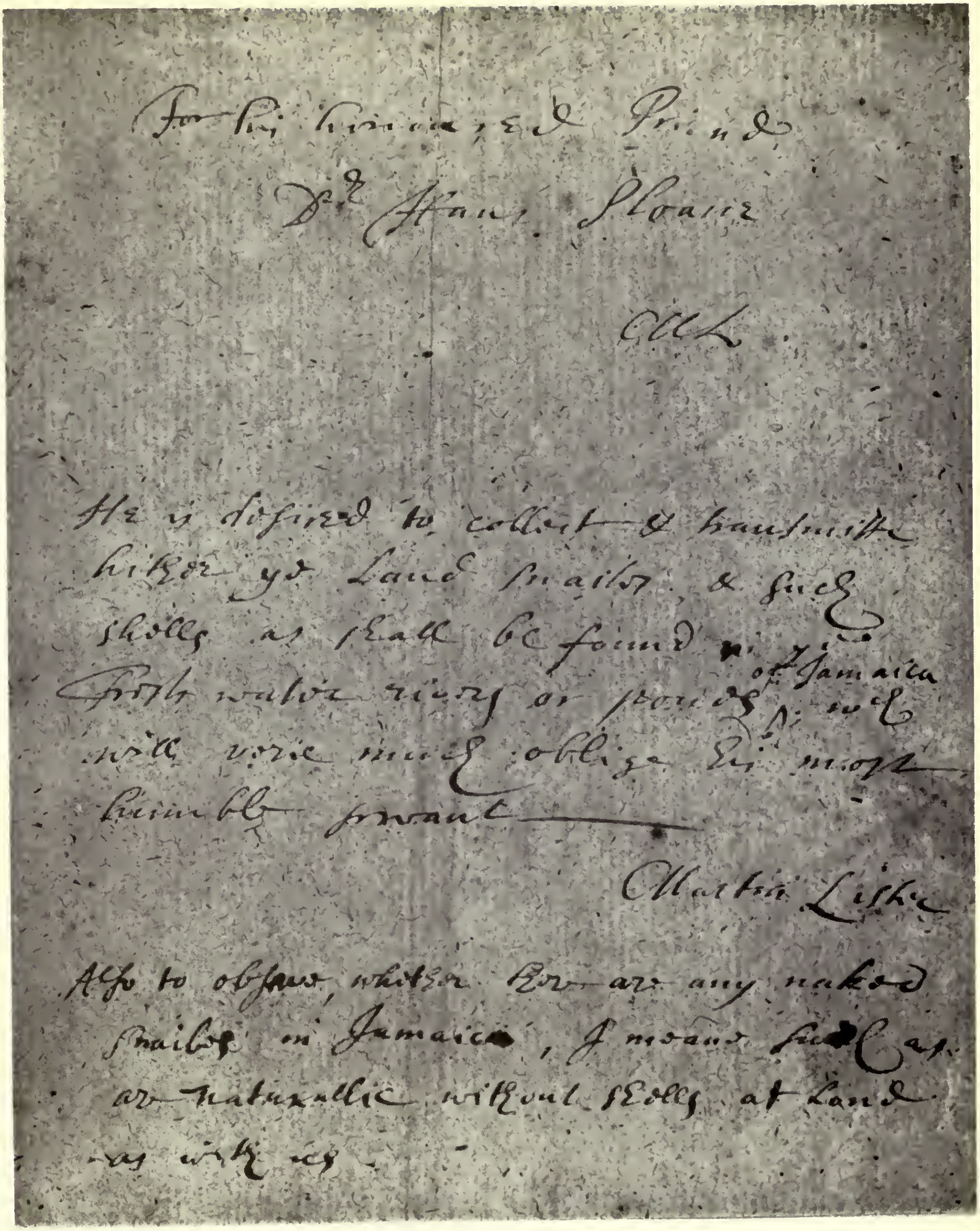
(With the exception of figure 50 all figures are actual size)

PLATE I

FIG. 1. Inscription on the flyleaf of a copy of *De Cochleis*, forerunner of the *Historia Conchyliorum*, and presented to Dr. Hans Sloane by Martin Lister on his departure for Jamaica in 1687. The inscription is in Lister's holograph.

The inscription reads as follows:

> " For his honoured Friend Dr. Hans. Sloane. M.L. He is desired to collect & transmitte hither ye Land snails & such shells as shall be found in ye Fresh water rivers or ponds of Jamaica which will verie much oblige his most humble servant— Martin Lister."
>
> " Also to observe, whether there are any naked snails in Jamaica, I mean such as are naturallie without shells at hand as with us."



For his honoured Friend
Dr Hans Sloane

ML.

He is desired to collect & transmitt
hither ye Land snailes & such
shells as shall be found in ye
Fresh water rivers or ponds of Jamaica wch
will verie much oblige his most
humble servant

Martin Lister

Also to observe, whither there are any naked
snailes in Jamaica, I meane such as
are naturallie without shells at Land
as with us.

FIG. 1.

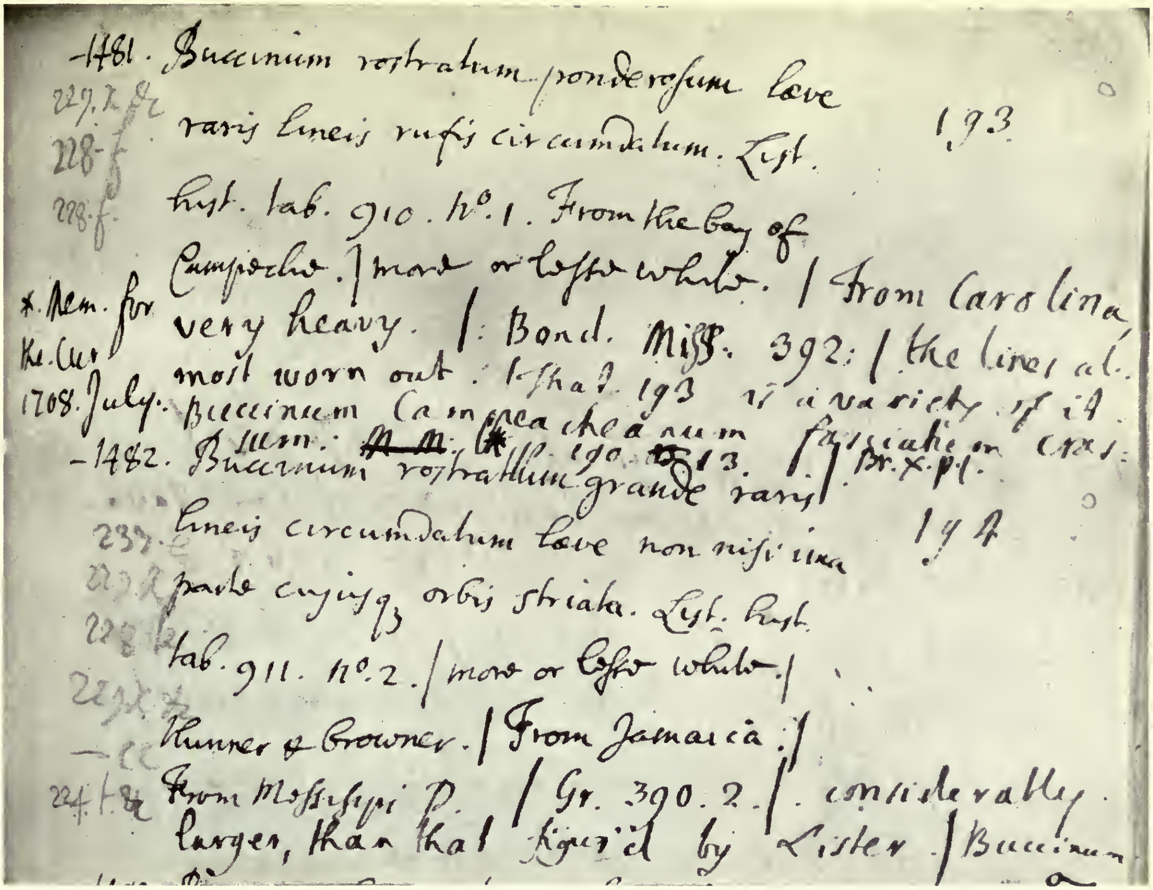
INSCRIPTION IN SLOANE'S COPY OF *De Cochleis* IN MARTIN LISTER'S HOLOGRAPH.

PLATE 2

Fig. 2. Part of a page of Volume One of Sloane Manuscript catalogue, showing method of multiple entries under items 1481 and 1482. Note oblique lines separating each acquisition.

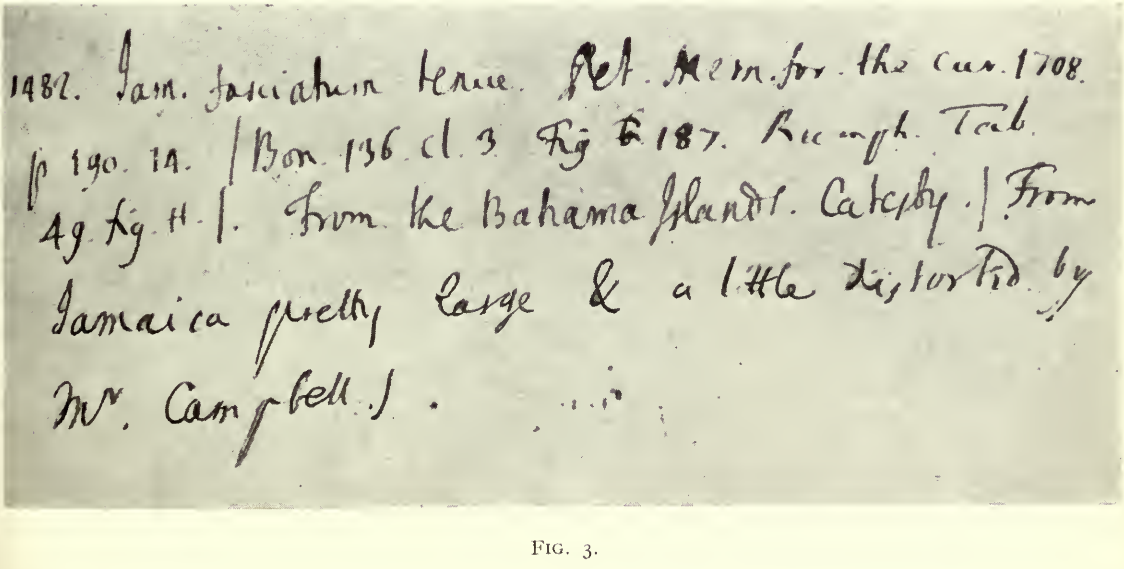
Fig. 3. Continuation of item 1482 from opposite (blank) page.

BRITISH MUSEUM
NATURAL HISTORY



1481. Buccinum rostratum ponderosum læve
227.2.Dr rariis lineis rufis circumdatum. List. 193
228.f hist. tab. 910. No. 1. From the bay of
228.f Campeche. | more or lesser white. | From Carolina
*Mem. for very heavy. |: Bond. Miss. 392: | the lines al-
the Cur most worn out. | Shad. 193 is a variety of it.
1708. July. Buccinum Campeacheanum fasciatum crass: Mem. ~~M. M.~~ *Ph. 190. 13. |.] Br. X. pl.
1482. Buccinum rostratum grande rariis
237.e lineis circumdatum læve non nisi ima 194
227.a parte cujusq; orbis striata. List. hist.
228.a tab. 911. No. 2. | more or lesser white. |
229.x Hunter & Browner. | From Jamaica. |
–cc
224.1.a From Mississipi R. | Gr. 390. 2. | considerably
larger, than that figur'd by Lister. | Buccinum

FIG. 2.



1482. Jam. fasciatum tenue. Pet. Mem. for the Cur. 1708.
p 190. 14. | Bon. 136. cl. 3. fig ~~1~~ 187. Rumph. Tab.
49. fig. H. |. From the Bahama Islands. Catesby. | From
Jamaica pretty large & a little distorted by
Mr. Campbell. |

FIG. 3.

ENTRIES FROM SLOANE MANUSCRIPT CATALOGUE.

PLATE 3

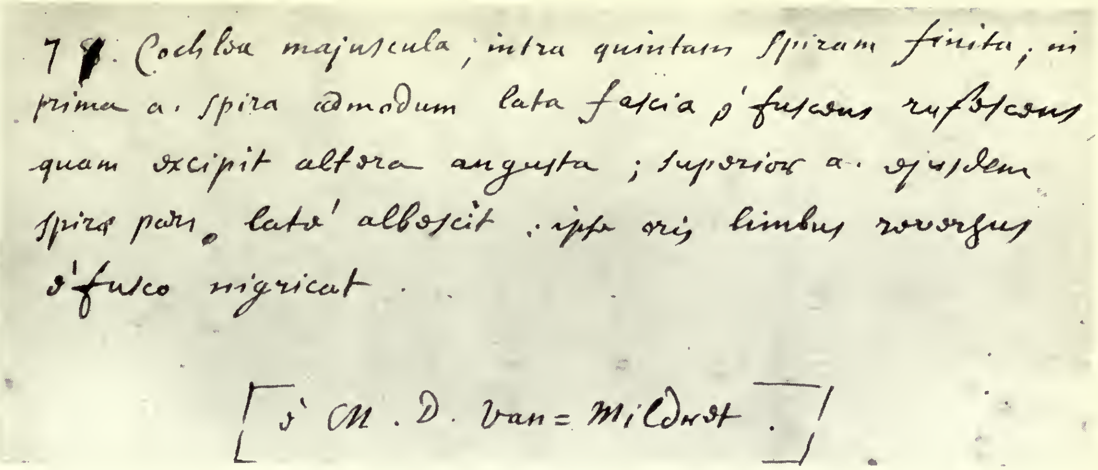
Fig. 4. Original description of the shell now known as *Acavus haemastoma* (L) sub-species *melanotragus* (Born), in Lister's writing and attributed by him to the museum of Dr. van Mildret.

Fig. 5. Original drawings from the Radcliffe *Historia*.

Fig. 6. Final engravings made from these drawings by Susanna Lister.

Figs. 7 and 8. Actual specimens from the Sloane collection, probably ex. Courten (S. 1963).

BRITISH NATURAL HIS



78. Cochlea majuſcula; intra quintam ſpiram finita; in prima a. ſpira admodum lata faſcia ē fuſcens rufeſcens quam excipit altera anguſta; ſuperior a. ejuſdem ſpirae pars, late albeſcit. ipſa oris limbus reverſus ē fuſco nigricat.

[ē M. D. van=Mildert.]

FIG. 4.

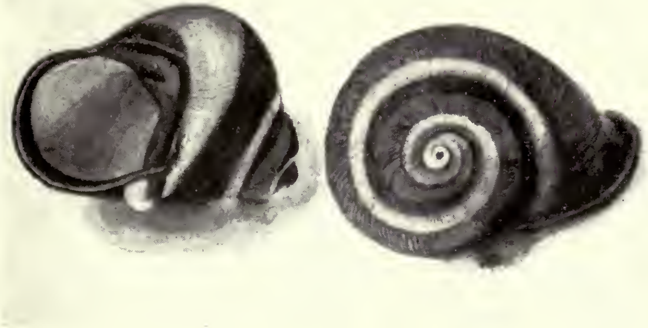


FIG. 5.

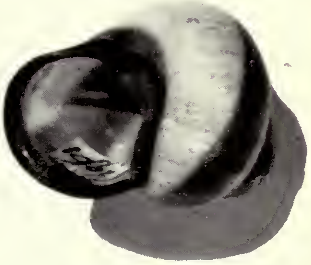


FIG. 7.

43 cochlea latis et nigricantibus fascÿs donata.

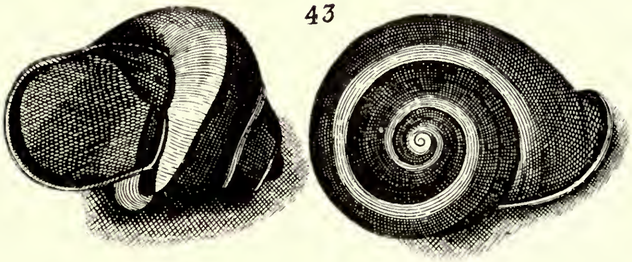


FIG. 6.

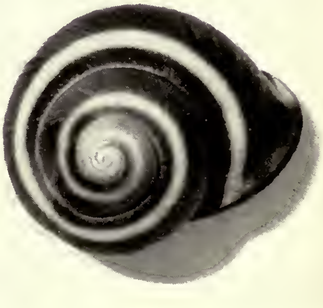


FIG. 8.

Acavus haemastomus. ORIGINAL DRAWINGS, ENGRAVINGS AND SPECIMENS.

PLATE 4

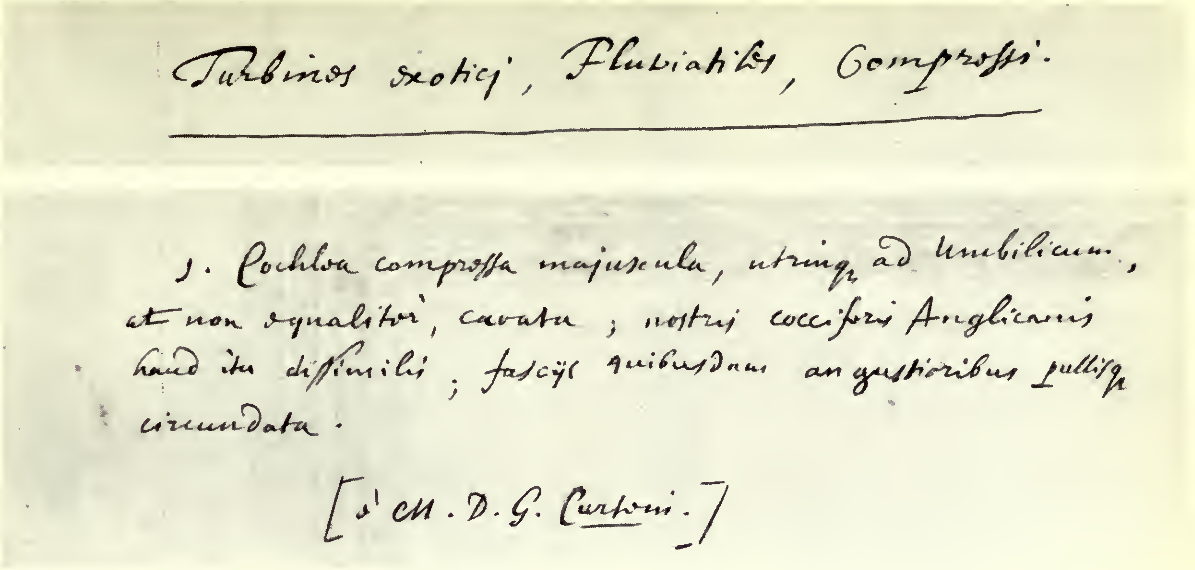
FIG. 9. *Ampullarius cornuarietis* (L), Lister's original description; specimen attributed to the museum of Dr. G. Curtein (Courten). Note the word "exotici" in the heading (footnote to p. 8 refers).

FIG. 10. Original drawing from the Radcliffe *Historia*.

FIG. 11. Actual Sloane specimen (S. 1993).

FIG. 12. Final engraving by Susanna Lister. *Historia* Tab. 136.

BRITISH MUSEUM NATURAL HISTORY



Turbines exotici, Fluviatiles, Compressi·

1. Cochlea compressa majuscula, utrinq ad Umbilicum, at non æqualiter, cavata ; nostri cocciferi Anglicanis haud ita dissimili ; fasciis quibusdam angustioribus pullisq circumdata ·

[à Cl. D. G. Curtoni.]

FIG. 9.

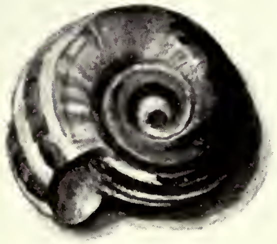


FIG. 10.

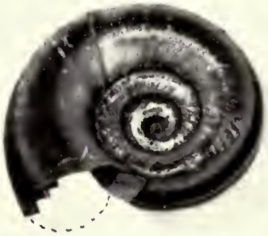
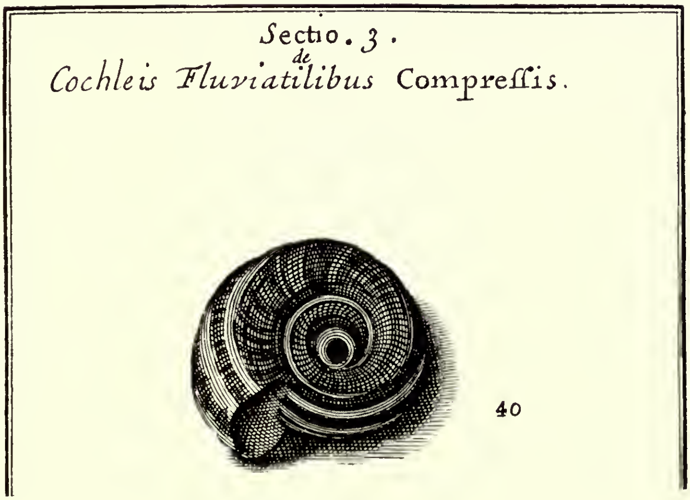


FIG. 11.



Sectio. 3.
de
Cochleis Fluviatilibus Compreſſis.

FIG. 12.

Ampullarius cornuarietis. ORIGINAL DRAWING, SPECIMEN AND ENGRAVING.

PLATE 5

FIG. 13. Engraving of *Turritella exoleta* (L) by Susanna Lister, with engraved heading, specific description and stock border. Note alteration to mouth of shell by Anna Lister.

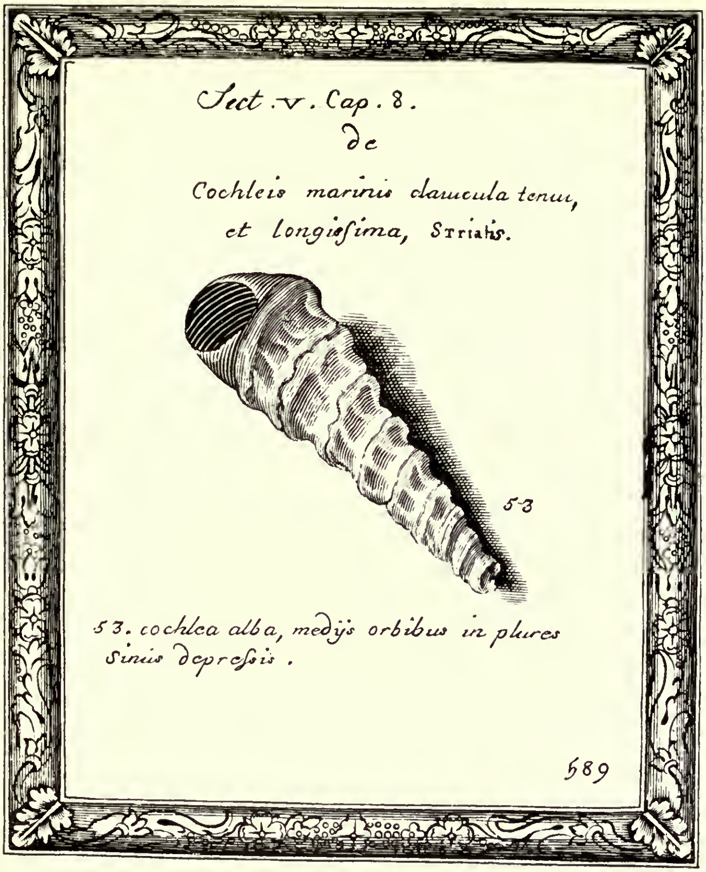
FIG. 14. Original drawing of damaged shell from Bodleian collection.

FIG. 15. Sloane specimen 1108, selected as the figured specimen.

FIG. 16. Single valve of *Chlamys squamosa* (Gmelin) Sloane No. ?

FIGS. 17 and 18. Original drawing and final engraving by Anna Lister. *Historia* Tab. 184.

BRITISH MUSEUM NATURAL HISTORY



Sect. v. Cap. 8.
de
Cochleis marinis claucula tenui,
et longiſsima, Striatis.

53. cochlea alba, medijs orbibus in plures
sinus depreſsis.

FIG. 13.

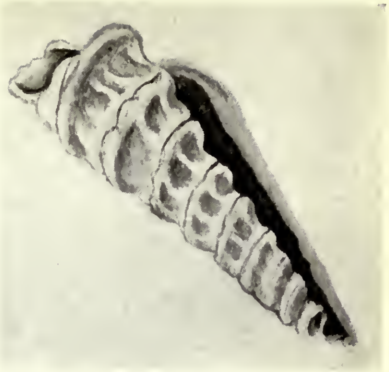


FIG. 14.

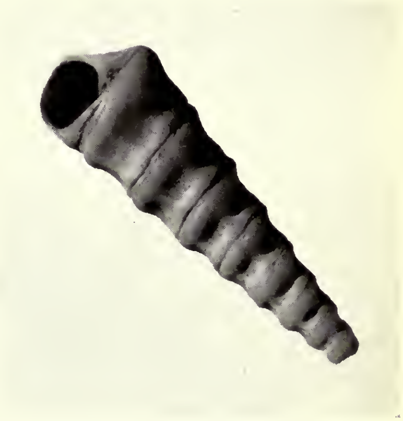


FIG. 15.

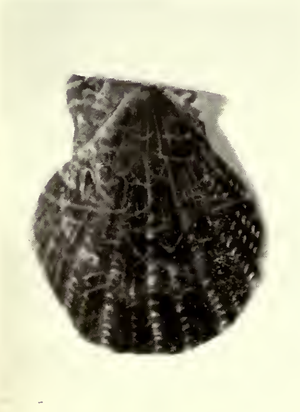


FIG. 16.

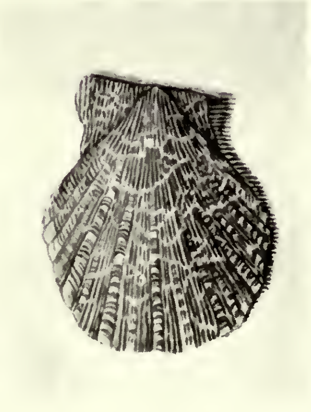


FIG. 17.

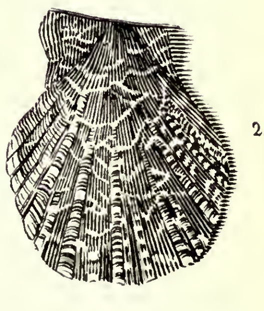


FIG. 18.

ALTERED ENGRAVING, ORIGINAL DRAWING AND SLOANE SPECIMEN OF *Turritella exoleta*.
(BELOW) SLOANE SPECIMEN, DRAWING AND ENGRAVING OF *Chlamys squamosa*.

PLATE 6

Fig. 19. Lister's original heading for his Sec. 16, later altered to Sec. 1 of Liber III (Multivalvium), and original drawing by Anna Lister, both from the Bodleian collection.

Fig. 20. Final engraving, with heading and specific description.

Fig. 21. Sloane specimen 745, *Pholas orientalis* Gmelin (damaged).

BRITISH MUSEUM NATURAL HISTORY

Sect. 16. Conchis trium testarum, Pholados antiquis dictis.

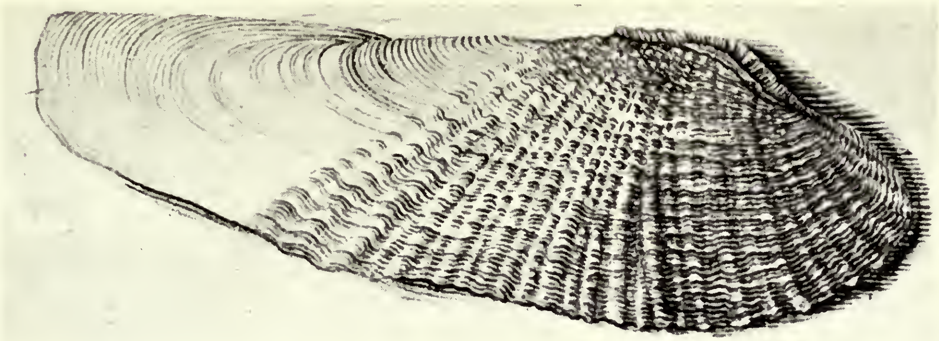
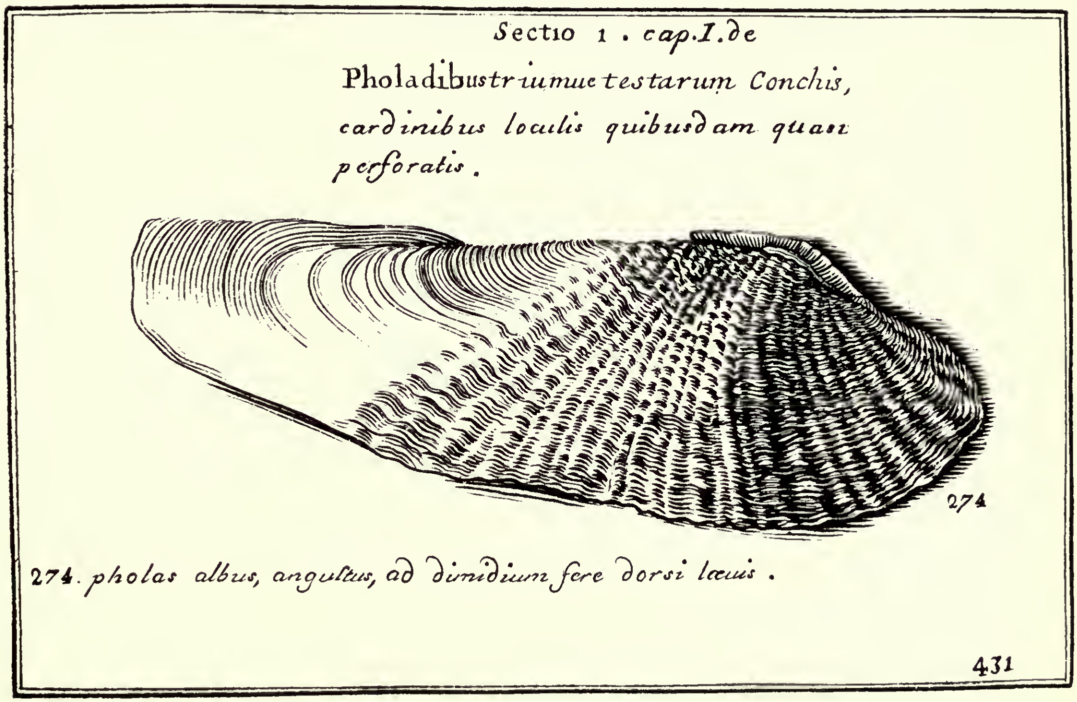


FIG. 19.



Sectio 1 . cap. I. de
Pholadibus triumue testarum Conchis,
cardinibus loculis quibusdam quasi
perforatis .

274

274. pholas albus, angustus, ad dimidium fere dorsi lævis .

431

FIG. 20.

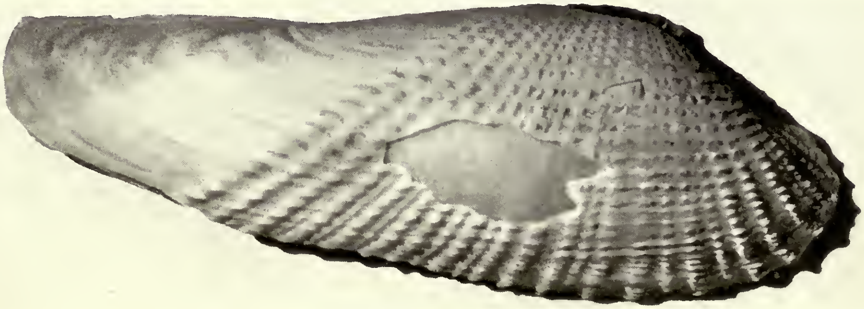
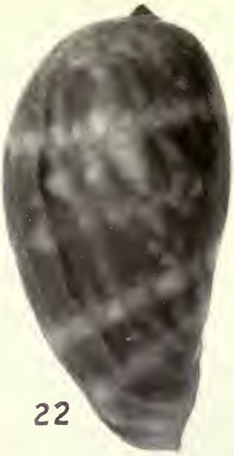


FIG. 21.

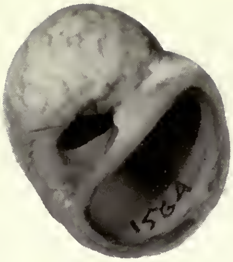
PLATE 7

Fig. 22. S.2243 *Cypraea mauritiana* L.
Fig. 23. S.1584 *Natica fulminea* (Gmelin).
Fig. 24. S.1578 *Lathyrus cingulifera* (Lamk.).
Fig. 25. S.2239 *Conus janus* Hwass.
Fig. 26. S.2276 *Busycon pyrum* (Dillwyn).
Fig. 27. S.2659 *Turritella variegata* (L.).
Fig. 28. S.1797 *Cymbium tesselata* (Lamk.).
Fig. 29. S.1013 *Patella granularis* L.
Fig. 30. S.1105 *Capulus intortus* Lamk.

BRITISH MUSEUM NATURAL HISTORY



22



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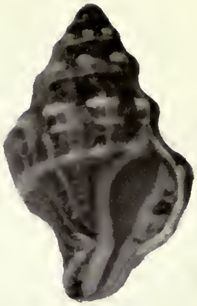
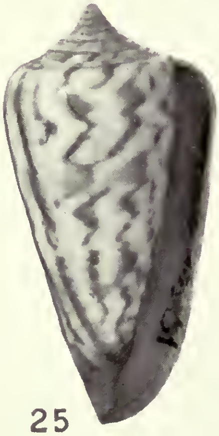


24



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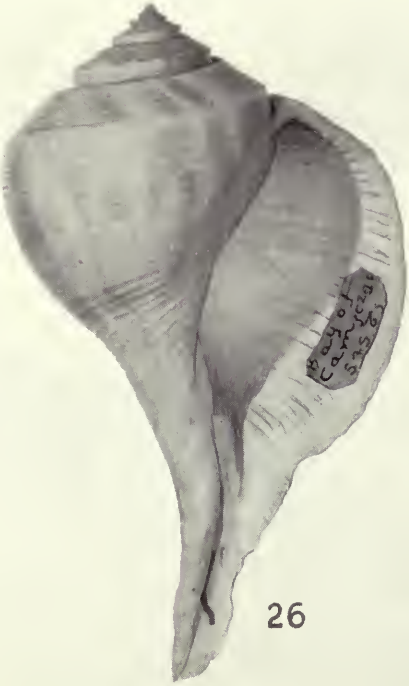
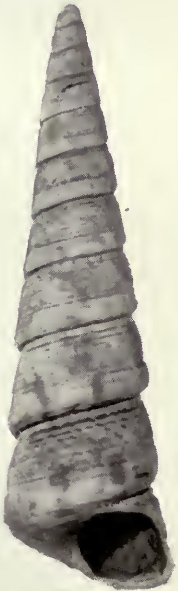

Bay of
Campeche
535 63

26



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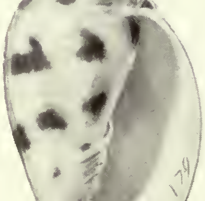
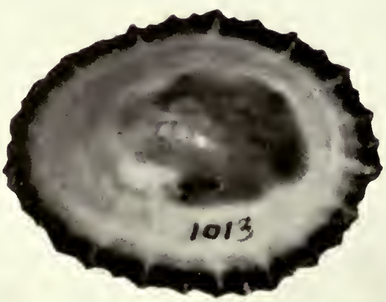
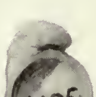


28

29





30

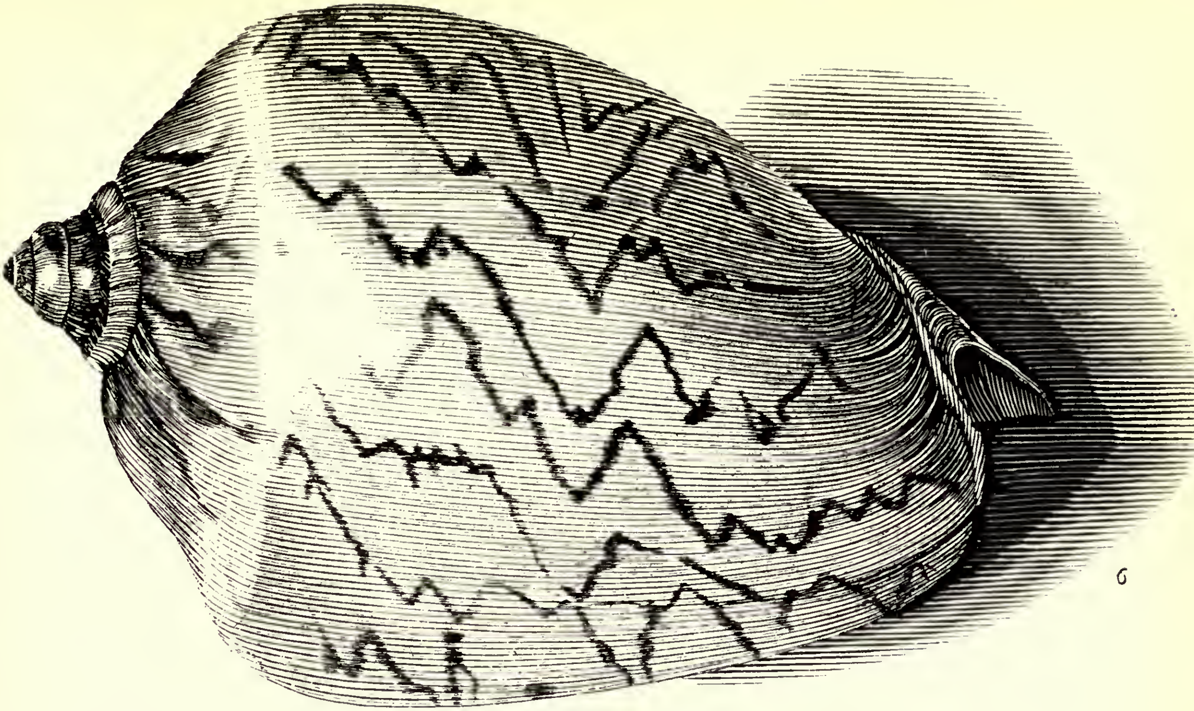
Sloane Specimens Figured by Martin Lister in the *Historia Conchyliorum*, 1685–92.

PLATE 8

Fig. 31. *Voluta scapha* Gmelin engraved by Anna Lister, *Historia*, Tab. 799.

Fig. 32. Original specimen from the Sloane collection. (Catalogue number not traced .

BRITISH MUSEUM NATURAL HISTORY



6. Buccinum Persicum Undarum, clavicula paululum exerta.

FIG. 31.

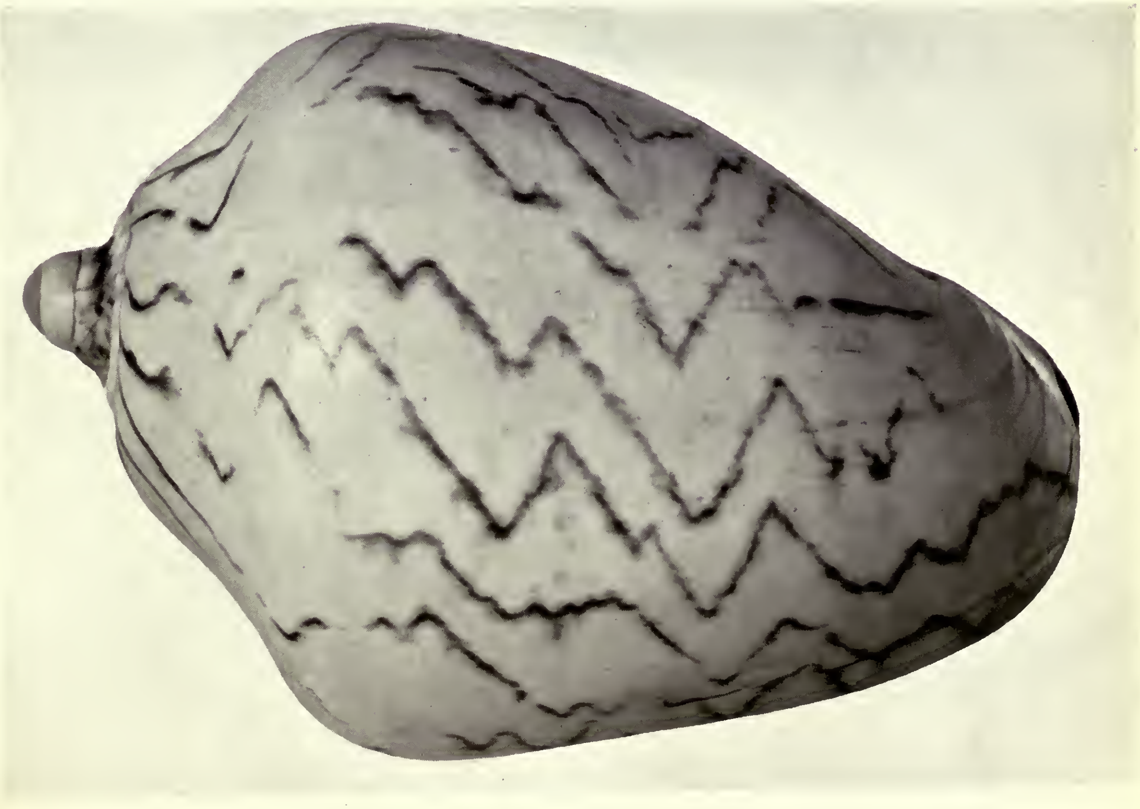


FIG. 32.

Voluta scapha. ANNA LISTER'S ENGRAVING AND SLOANE SPECIMEN.

PLATE 9

FIG. 33. Sloane specimen 3871 *Rostellaria rectirostris* Lamk.

FIG. 34. Original drawing from Bodleian collection.

FIG. 35. Final engraving by Susanna Lister. *Historia*, Tab. 854, sp. 11.

BRITISH MUSEUM NATURAL HISTORY

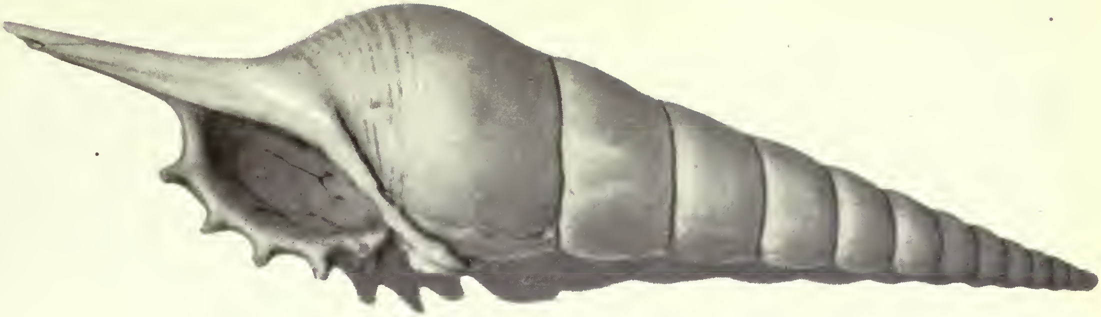


Fig. 33.

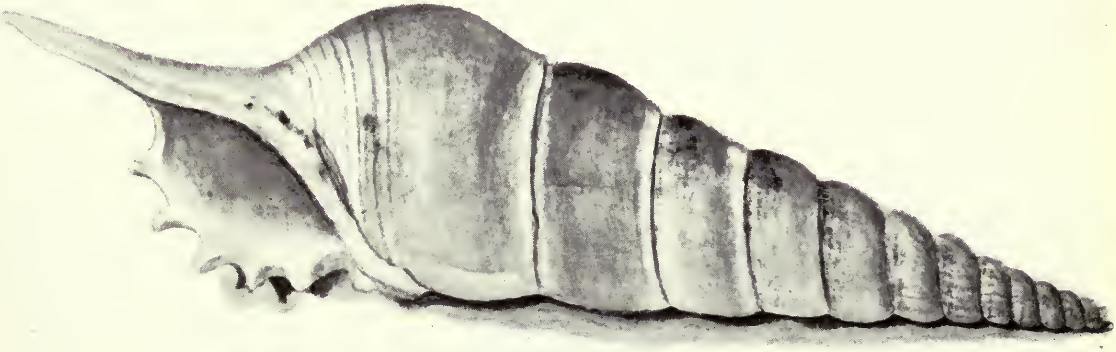


Fig. 34.

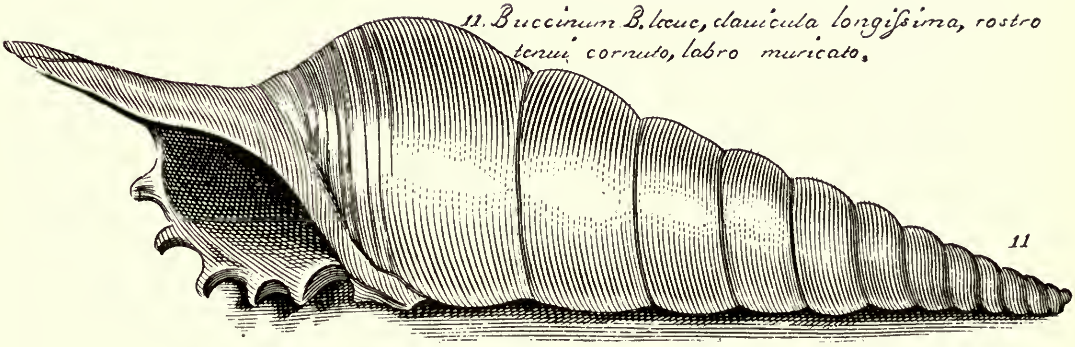

11. Buccinum B.leuc, clavicula longiſsima, rostro
tenui cornuto, labro muricato.
11

Fig. 35.

Original Specimen, Drawing and Susanna Lister's Engraving of *Rostellaria rectirostris.*

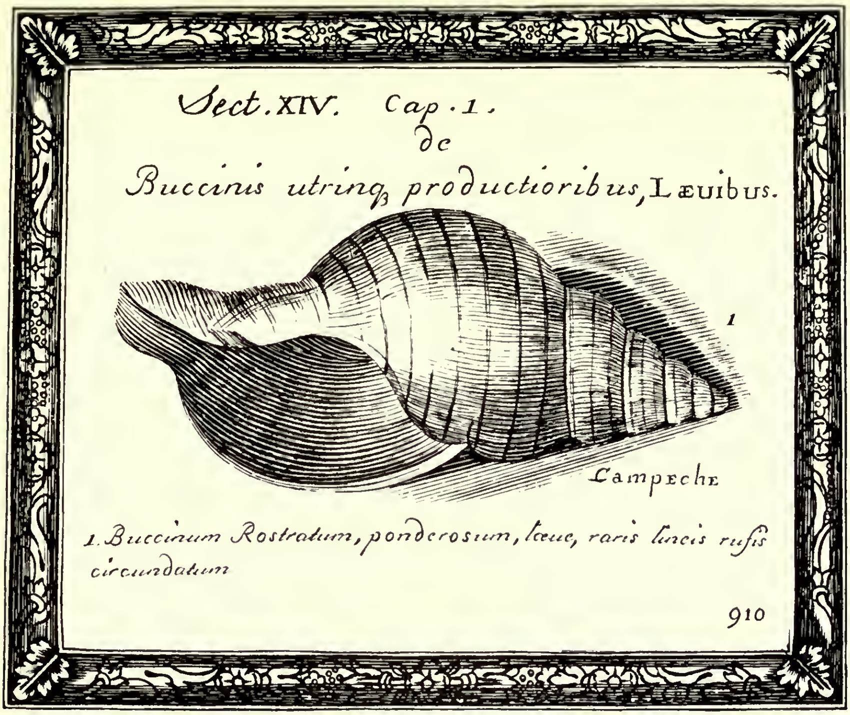
PLATE 10

Fig. 36. *Fasciolaria distans* Lamk., engraved by Anna Lister.

Fig. 37. Original drawing in the Bodleian collection.

Fig. 38. Sloane specimen 1481 ex. Courten " Bay of Campeche." (See reproduction of Sloane catalogue entry (Fig. 2).)

BRITISH MUSEUM NATURAL HISTORY

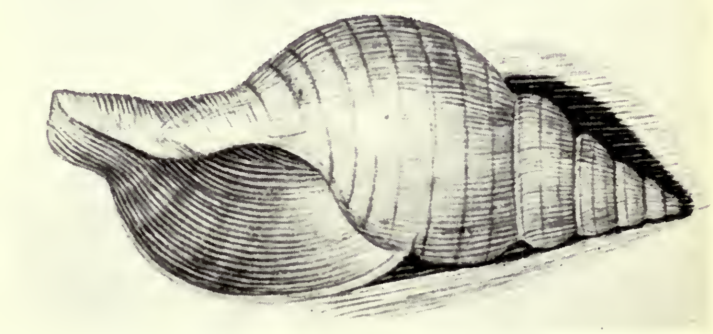


Sect. XIV. Cap. 1.
de
Buccinis utrinq; productioribus, Læuibus.

1. Buccinum Rostratum, ponderosum, læue, raris lineis rufis circundatum

FIG. 36.

FIG. 37.



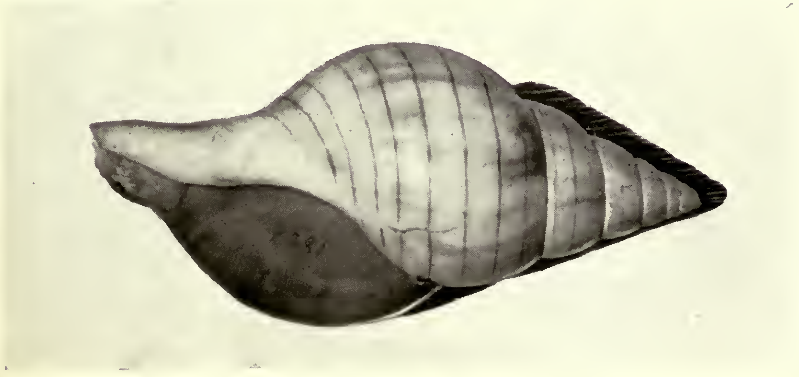


FIG. 38.

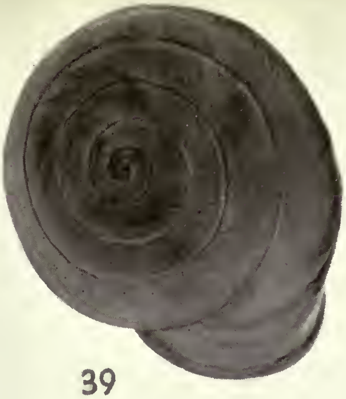
Fasciolaria distans. FINAL ENGRAVING, DRAWING AND ORIGINAL SPECIMEN.

PLATE 11

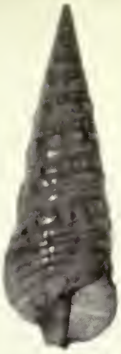
Original specimens collected by Sir Hans Sloane in Jamaica.

FIG. 39. S.1983 *Pleurodonte acuta* (Lamk.) var. *patina* C. B. Adams.
FIG. 40. S.1130 *Cerithium articulatus* Ad. & Reeve.
FIG. 41. S.1695 *Pleurodonte aspera* (Férussac).
FIG. 42. S.1531 *Nerita polita* L.
FIG. 43. S.1594 *Strombus gigas* L. (Juvenile).
FIG. 44. S. 752 *Trochus magus* (L.). (Probably introduced.)
FIG. 45. S....? *Chiton granulatus* (Gmelin).
FIG. 46. S.1787 *Conus coronacivica* Röding.
FIG. 47. S.1419 *Chama macerophylla* Gmelin. (Single valve.)
FIG. 48. S. 177 *Trochus pica* (L.).
FIG. 49. S.1443 *Astraea calcar* (L.).

BRITISH MUSEUM NATURAL HISTORY



39



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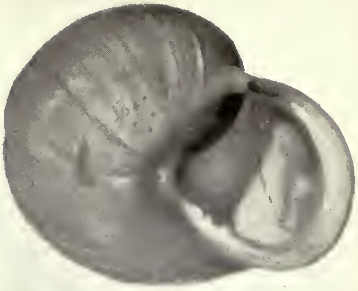
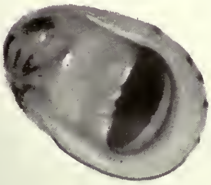


41



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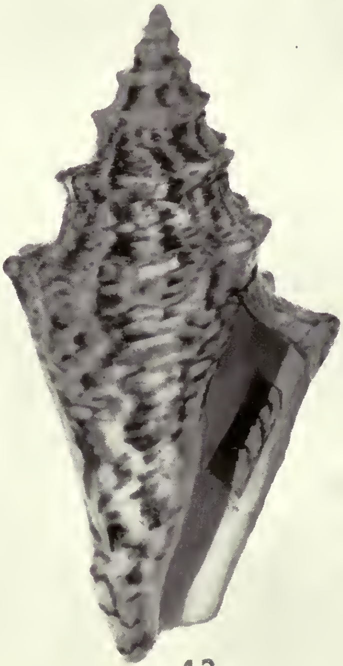
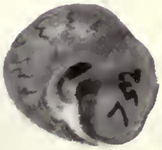


43



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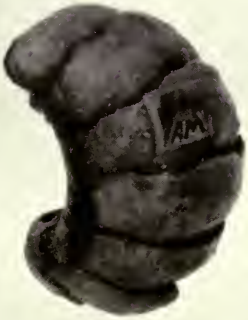
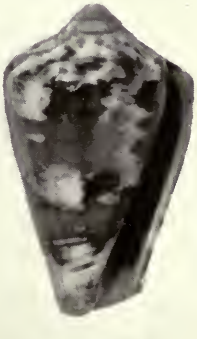
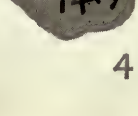


45



46



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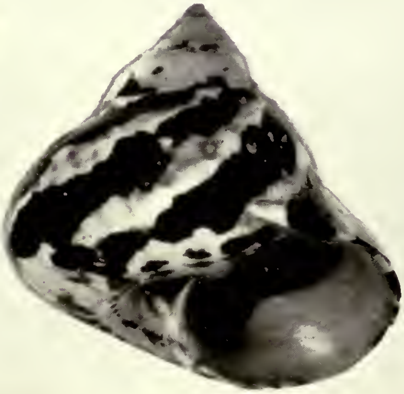

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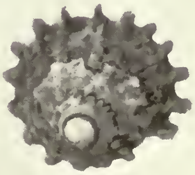

49

Shells Collected by Sir Hans Sloane in Jamaica.

PLATE 12

FIG. 50. Sloane specimens 886—887. *Cristaria plicatus* (Leach) with culture pearls attached to each valve. *Holotype* (reduced).

BRITISH MUSEUM NATURAL HISTORY

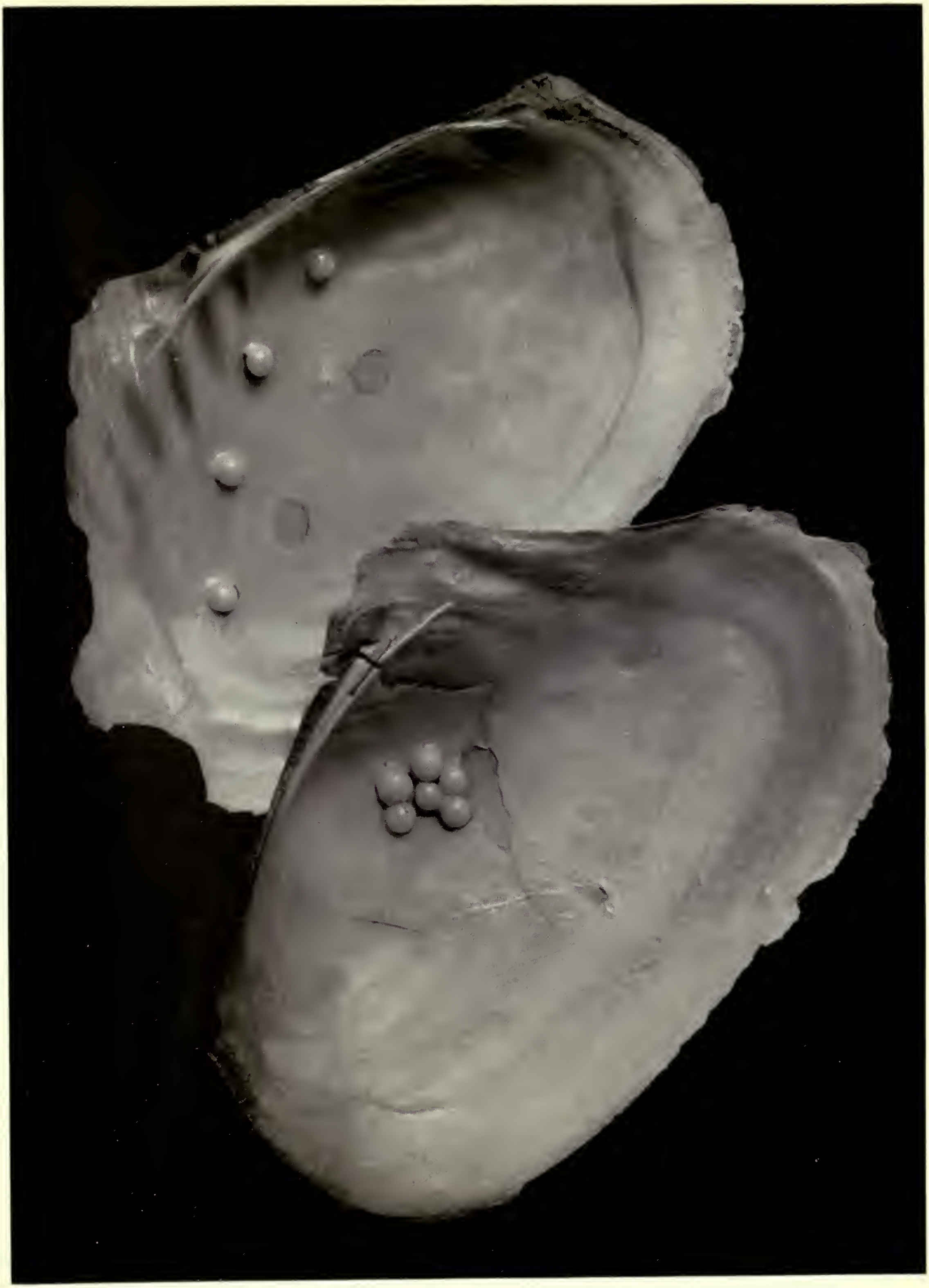

FIG. 50.

Cristaria plicatus (LEACH) *Holotype* MUS. SLOANE. (SLIGHTLY REDUCED.)

BRITISH MUSEUM NATURAL HISTORY
PRESENTED
6 JUN 1953

LOUIS AUGUSTE DESCHAMPS

PRESENTED
28 JAN 1954

C. G. G. J. VAN STEENIS,
M. J. VAN STEENIS-KRUSEMAN
AND
C. A. BACKER

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES Vol. 1 No. 2
LONDON: 1954

LOUIS AUGUSTE DESCHAMPS

BY

C. G. G. J. VAN STEENIS,
M. J. VAN STEENIS-KRUSEMAN
AND
C. A. BACKER

Pp. 49–68; *Pl.* 13

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LONDON: 1954

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Issued January, 1954. *Price Six Shillings.*

LOUIS AUGUSTE DESCHAMPS
A PROMINENT BUT ILL-FATED EARLY EXPLORER OF THE FLORA OF JAVA, 1793-1798

By C. G. G. J. VAN STEENIS, M. J. VAN STEENIS-KRUSEMAN
AND C. A. BACKER

1. INTRODUCTION

THOUGH it is known that the Department of Botany of the British Museum (Natural History) possesses a collection of plates and MSS. of Deschamps, no detailed account based on these MSS. has hitherto been published. During a short stay in England in November, 1946, my wife and I had the privilege of examining these plates and MSS.

According to a letter dated 22nd December, 1936, from M. E. Deligny, librarian of the Municipal Library of Saint Omer, France, to Dr. C. A. Backer, who had asked for data concerning Deschamps for his volume on the etymology of Latin plant names,[1] Louis Auguste Deschamps[2] was born at St. Omer on 22nd August, 1765. He completed the courses of the ancient medical Faculté de Douai on 22nd July, 1788. He was later a member of the medical jury of the Pas de Calais and physician in the hospital of St. Omer, where he died on 25th February, 1842. He was very young when he began his scientific career, and his works were highly appreciated by his contemporaries. In 1791 he was selected to serve as naturalist on the fruitless expedition to Southern waters of the frigate "La Recherche" under the command of A. R. J. Bruny D'Entrecasteaux, in search of the lost expedition of J. F. De G. La Pérouse in the " Boussole " and the " Astrolabe " (1785–88).

When " La Recherche " was seized in Java in 1793, Deschamps was for a short time interned by the Dutch, but Governor Van Overstraten realized his abilities, and generously allowed him to stay in Java and study natural history, for which he obtained all facilities to extend his researches into the interior of the island. Deschamps accepted, as he himself says, in the interest of science, and took leave of his travelling companions. In the subsequent years he made numerous long trips, and he certainly was the first to visit and make collections in many remote regions, for he ascended dozens of then unknown mountains all over Java. It is much regretted that apparently none of his botanical specimens has been preserved. His diary, drawings and MS. papers suggest that what he prepared in the form of botanical specimens was extremely valuable.

---

[1] *Verklarend Woordenboek, etc.*, 1936.

[2] M. Deligny used as a source the *Dictionnaire biographique du Département du Pas de Calais* 1879, by Ad. de Cardevacque.

According to M. Deligny's letter, Deschamps returned to France in 1803, the ship in which he was a passenger having been intercepted by the British Navy in the English Channel. All his collections and papers the fruits of eleven years of research were confiscated, and were apparently declared to be war booty.[1] This material was deposited in India House. Later John Reeves bought the Deschamps MSS., with a collection of dried plants from Java, at a sale at India House and in 1861 presented the manuscript to the British Museum.

The plant specimens are apparently lost, and there is no evidence that they were ever received at the British Museum.[2] The MSS. consist of his unpublished autograph journals kept during the voyage and on subsequent travels in Java, with materials for a flora of Java.[3] These MSS. and plates include water-colours of Javanese scenery, of plants (including those of De Noronha or Noroña, which were sent to him by Governor Van Overstraten) and of animals, as well as other notes and memoranda. They are now all preserved in the Library of the Department of Botany, British Museum (Natural History).

During part of his travels Deschamps was accompanied by some young Javanese assistants who were to help him in collecting material and in preparing drawings of plants and animals (he also collected fishes). Afterwards he settled in Java as a physician until 1802, in which year he sailed for Mauritius, and subsequently to France. On the point of reaching his motherland, as mentioned above, he lost his treasures. Shortly afterwards according to the information given by M. Deligny he was nominated first class physician in the hospitals of the Navy. The *Annales des Voyages* de Malte Brun and the *Mémoires de l'Académie d'Arras* contain valuable observations of Deschamps, who was as interested in natural history researches as he was inclined to historical studies. In the *Mémoires de la Société des Antiquaires de la Morinie*, of which he was an honorary member, he published in vol. 1, " Dissertation sur le Sinus Itius,"[1] vol. 2, " Relation du Sac de 1771," vol. 3, " Précis historique sur Ardres," vol. 4, " Notice sur Malsaut, comtesse d'Artois."

---

[1] It is clear, however, that efforts were made to restore the collections to Deschamps, and the following extract from a letter dated 29th July, 1803, from Sir Joseph Banks to Barthélemy Faujas de St. Fond [Brit. Mus. (Nat. Hist.) *Banks Corr.* **14**, fol. 101] is of interest :

> " Mr. Deschamps, the Companion of La Billiardière on board *L'Entrecasteaux* ship arrived here, a prisoner, as Broussonet will have informed you—I have great pleasure in telling you that, as soon as our Government heard of the Capture, they gave order, that, if any part of the collection should be deemed by the Captors too valuable to be abandoned on the part of their Crews, those things should be purchased at the expense of Government, and returned gratis to M. Deschamps.
>
> " I have had much trouble in collecting his Property together, owing to the absence of Captors, and mistakes that have arisen between the Custom House of Portsmouth and London. At present I hope I have got the whole safe in the Custom House of London, in which case it will be forwarded by the first opportunity to Calais ".

In another letter dated 30th January 1804, to Robert Ferguson [Brit. Mus. (Nat. Hist.) *Banks Corr.* **14**, fol. 205] Banks says : " Will you be so good as to tell M. Deschamps who you will hear of at the Jardin des Plantes that if our Flag of Truce goes from the Thames I will do my best to send his things in it."

[2] Cf. *Journ. Bot.* **41** : 282–283 (1903).

[3] " Plantes trouvées dans mon voyage de cette année 1798 à Tjiseroa " (with drawings in pencil) ; Genera et species nova recondita in meo itinere e Cheribon usque Batavia " (with drawings) ; " Flora Javanica seu Descriptio plantarum quae reperiuntur in insula Java " ; " La flora javane ou description des plantes qu'on trouve dans l'Isle de Java " ; " Apperçu de l'Isle de Java et de ses productions " (several lists of plants).

The well-known grass genus *Deschampsia*, of world-wide distribution, was named in his honour by Palisot de Beauvois in 1812.

2. ITINERARY OF DESCHAMPS'S TRAVELS IN JAVA

From a study of the neatly written, illustrated French MSS. and a diary Mrs. Van Steenis has compiled the following itinerary of Deschamps:

The expedition of the " Recherche " anchored at Surabaja, East Java, Oct. 28, 1793, where the members were not exactly interned but not allowed to go far inland. Deschamps used his time in studying the native language and the flora. With the other members he was transferred to Semarang (Central Java) in March, 1794, where Governor Van Overstraten made him the above-mentioned proposal. He started collecting in the environs of Un(g)aran(g), in the meanwhile preparing for an extensive excursion into the interior. Leaving Semarang (May 8, 1795) for Salatiga, from there climbing Mt. Merbabu (Marababou in his diary) via Kopeng (15), and returning to Salatiga; setting out (29) to Bojolali; Djokjakarta; trip to the south coast (hot spring and caves); stay at Djokjakarta; setting out with Mr. Ijsseldijk on a tour (Aug. 2), via Bantol, Brosot, Selangon, Rawa, Padat, to Caranbolon (= Karangbolong on the south coast), collecting several new plants on hills in the environs; from Patanaga (= Petanahan) to Rawa (large lake with pelicans, etc.), Louvano (pepper plantations), Soerakarta (24); Sept. 2 via Bojolali climbing Mt. Merapi and back; Sept. 8 to Mt. Lawu, via Gondo (9), he himself being too tired to reach the summit, but sending his collectors thither (11); back at Solo (= Surakarta) (12); return to Djokjakarta (18); to Djivo (28), Maniaran (29), Bankat (30), through teak forest (31), Zuidergebergte, from Mounon (Oct. 1) to Patiitan (= Patjitan), back to Maniaran, Djivo (6), Baudion (or Bodion) (7), via Magelang and Setron returning to Semarang; in the vicinity of Mts. Soembing and Sindoro (20), at Wonogiri (21), Soulocaton (= Selokaton) (22); through teak forest with many monkeys, Batan (= Batang) (23); Pekalongan (24); via Pemalang to Tegal (26), giving up the idea of climbing Mt. Slamat, and returning to Pekalongan (staying 3 weeks), from where (Nov. 22) via Batam (= ? Batang) along the coast to Plaburan, Panarouban, Bleri (= Weleri) (leaving on the 23rd), Kendal (24), and Semarang. The rainy monsoon was used for arranging and identifying the collections. April 1796 setting out for a 6-month trip, accompanied by 2 draughtsmen, slaves etc.; from Semarang to Masaròn; Siraguèn (May 3), Djogorogo (4), and the 5th proceeding by proa to E. Java: Ngawi at the junction of Solo and Madiun River; descending the river to Panolang (6), Searang (8), Camolan (9), Doucon (= Dukung) (10), and Grisséé (11), visiting the environs of the latter place; by boat to Surabaja (23), from there (26) to Bangil, making a mountain trip (30) to Pandangan and Ledu (June 2): to Bagal (= Bangil) (June 3), Pasuruan (5), and the 11th setting out to Tinguer (= Mt. Tengger), visiting Mt. Bromo via Puspo, the " mer de Cendre " (= Zandzee), Bato(er), till the 14th, and then proceeding to Malan(g) via Bangor (14), Poron(g) (15), Malang (15); Poron(g) (16) to Pasuruan

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[1] Port in N.W. France from where Caesar crossed the Channel to England.

(16), Surabaja (20), embarking (25) for Madura, visiting Ban(g)kalan(g), making a trip to the N. coast (26), and to Pamekas(s)an (30); from Bankalan (July 5) to Sumenap (= Sumenep) (6), staying till July 14; leaving the island by boat (15) and forced to land near Besuki at Panarucan (= Panarukan) in E. Java; proceeding by land to Cape Sundana (= Sedano) near Sombrouarou (Sumberwaru), and to Banjuwangi via Batudodol (20); collecting in the environs of Banjuwangi (also zoological objects); on his way (Aug. 8) to the Ydjieng (= Mt. Idjen) via Bandjar, visiting the crater; back to Banjuwangi (11) with an extensive collection of plants, etc.; trip to the S. coast, collecting a new *Passiflora*, a *Limonia*, etc., and returning via Kradjagan (=? Gradjagan) (18), Panpan (= Pangpang) (19), making several small trips, and staying for 6 weeks at B(e)lambangan; by sea (Sept. 6) to Besuki; proceeding to Probolinggo (9), and Pasuruan; Surabaja, Grisse(e); crossing to Madura (fort Sambilungan = Sembilangan) (20), and back to E. Java, Sydayo (= Sidaju) (21); to Crandji (22), Touban (23), Niangolon (24); Centr. Java: Las(s)em, Rembang (26), Joinna (= Joanna), from where (Oct. 2) to (D) Japara, climbing Mt. Murai (= Moeriah) (4), and returning to Japara (6); back at Semarang (7). During the wet monsoon staying at Semarang. May 1, 1797 "en route" once more, this time to the west; leaving Semarang (May 1), via Kaliwongan (= Kaliwungu), Kendal, Vleri (= Weleri), Batan(g) (2), Pekalongan (3), Tegal (June 5–13); setting out to Mt. Tagal or Mt. Sraia (= Slamat), via Bandiaran (14), Ramboul (15), Tchibedel, not reaching the summit, but descending on the 16th; via Labaxio (= Lebak Sioe) (16); returning to Tegal (17); the 19th proceeding via Berbes (= Brebes) to W. Java, Cheribon; visiting some hot springs in the environs of Cheribon (July 7 and 8), making a trip to the district West of Mt. Tjermé (= Tjeremai or Tjareme); to Ling(g)adjati (10), visiting slope of Mt. Tjeremai; the 13th trying to climb Mt. Tjermé, but being himself too tired, he sent his collectors to the summit; Cheribon (15–23); proceeding via Ragasvatjana (24), Quali (= Kawali) (26), Tj(i)amis (27), Konasin (30), Tjeboulon (31); by proa downstream the river Tjeboulon (Aug. 1) and Tchelando, and crossing to Nusa Kambangan (Island), visiting Manoudjai, N. Central coast of the island, some caves (2), Pamotan (3), and walking along the S. coast of W. Java to the west (5) to point Penandjon (= Penandjung or Panindjoan Peninsula); Tchecomboulon (= Tjikembulan), leaving the 6th for Soukapoura (staying 9–12); to Pamoijanan (13), Panembon (14), trip to Mt. Papandajan (15), and from Panembon along the foot of Mt. Guntur to Djatilaxano, and Prakamoutjon (W. of Sumedang); visiting hot spring (18); Bando(e)ng (19); mountains N. of Bandung (21); to Tjeraton (23), collecting in the environs (23–24); Bandung (25–26); to Batulaian (27), collecting in the environs (29); Rajamandala (30), Tchekalon (= Tjikalong) (31), Tj(i)andjo(e)r (Sept. 1–5); Mt. Gede (not the summit), Tjipanas and environs (6–11); back at Tjiandjur (12); from Bandung (17) to TcheCombar (= Tjikembar) (20), Tcheringin (= Tjaringin) (21), and Wijnkoopsbaai or Pelabuan Ratu (22); Pandjindang (23); Tchethourou (= Tjitjurug) (24), Pondok Gede (25–30), Tsjero(e)a and Megamendung (Oct. 1–8), Pondok Gede (9), Buitenzorg (10), Batutulis; towards the end of October proceeding to Batavia, 1798 at Buitenzorg (April); Sumedang, P. Muntjang, Mt. Guntur, Mt. Tangkuban Prahu.

3. IDENTIFICATION OF DESCHAMPS'S PLATES OF JAVANESE PLANTS

Dr. Backer and I have refrained from identifying the numerous beautifully detailed drawings of dissected flowers, etc., which illustrate the diary and other MSS. of Deschamps, limiting ourselves to the collection of large quarto figures in a portfolio, which was shown to the first two authors in November, 1946. Lack of time then prevented us from making a close examination of the identity of the species represented.

In 1947, with the kind permission of the Trustees of the British Museum, these plates were sent on loan to Holland, where Dr. Backer and I could study them at our leisure in detail.

The plates were intended by Deschamps for publication in a several-volumed work *Flora Javanica.* A few plates were copied from Rumphius's *Herbarium Amboinense,* viz. pl. 251 and 252, representing respectively *Cocos nucifera* and *Arenga pinnata.* The others are obviously all original either made by Deschamps himself or by draughtsmen (probably Indonesian) who accompanied him and were placed at his disposal by his protector, Governor Van Overstraten.

Though Deschamps at some time received a copy of the plates made by or for Noroña—which we have also identified—there is no agreement between the Latin and vernacular names by Noroña and by Deschamps. Deschamps apparently did not " borrow " anything from his predecessor. As a matter of fact his travels are infinitely wider and more prolonged than the trip Noroña made. He appreciated the latter's work apparently and named Nos. 188–189 a genus *Norona* (= *Salacia*) after him. He did not neglect other persons : in the first place his protector after whom he named a *Saurauja* species *Overstratia* (No. 94) ; another was named after Mr. Ijsseldijk *Ijseldithia* (No. 172), and there is *Feberina* (No. 73) after somebody unknown to us.

The plates have been numbered by us (in pencil) in the sequence in which we received them. They were already laid in five covers on which was noted : Polypetalae, Monopetalae, Monocots and Cryptogams. This arrangement was probably done at the British Museum.

Some of the plates are water-colour drawings.

Sometimes analyses of flowers are added, and all plates bear the character of being exceedingly artistic and accurate. Their composition must certainly have given Deschamps real pleasure, and the diary shows how much he was interested by and absorbed in a careful examination of the species. His zeal and untiring interest must have been tremendous.

Most of the plates are accompanied by a native name, written by Deschamps in the French manner as he understood them from the native pronunciation. These native names are partly in Javanese and partly in Sundanese, indicating his collecting respectively in the central and eastern parts of Java or the western part.

These vernacular names proved to be valuable in checking our identifications.

Some of the names he cited are wrong. For interest we have added some of the names in their present spelling in the third column. Moreover a good many of the plates are provided with Latin plant names, which served apparently as preliminaries for the intended future publication.

From the plates it is obvious that Deschamps made his trips to a large extent in unknown country and that he was a keen observer in the field. It is curious to note that Deschamps collected several species which are now very rare in Java. The island was, in Deschamps's time, much less devastated and much less converted to a "culture-steppe" than at the present time. Among the outstanding discoveries is that of *Rafflesia*, of which a good drawing is preserved and of which we have added a photograph to this paper (Pl. 13). Twenty years later, sometime between 1812 and 1819, Horsfield also collected an (immature) specimen of *Rafflesia* in Java, but the first published record of the genus *Rafflesia* was only made as late as 1820–22 by R. Brown in *Trans. Linn. Soc.* **13** : 201 (1821).

Some of the species or genera were apparently new to science in the opinion of Deschamps, and in those cases he added the abbreviations G.N. (*genus novum*) or S.N. (*species nova*).

That Deschamps did most of the drawings himself is likely, but of this we cannot be certain. For instance we found on pl. 56, *Lagerstroemia*, an indication that this plate was made by a certain Soehati, whom we assume to be one of the Javanese draughtsmen.

In addition to *Rafflesia*, some other records deserve comment. For example, No. 6, *Aeschynomene trachyloba.*, which is an exceedingly rare species and according to Backer (*Schoolflora*, 1911, p. 333), has only been once found in Central-East Java and not recorded since.

An outstanding record is no. 57 "*Bombax lobatum*," which represents unmistakable *Cochlospermum religiosum*, a plant which was doubtless introduced by the Hindus[1] as a sacred temple plant. Hitherto it has been found only very locally in Bali Island. As Deschamps never visited that island, his record must have been derived from a Javanese plant.

Among the plants depicted are some which evidently had at that time already been introduced into Java; examples of this kind are No. 43, *Otophora alata* (native in Borneo), No. 47, *Mesua ferrea* (not found wild in Java), No. 39, *Hydrangea macrophylla* from Eastern Asia, No. 125 represents *Coffea arabica*, of which the cultivation in Java dates back to 1697–1698.

The collections reflect Deschamps' activities in nearly all types of vegetation; the dry arid parts of East and Central Java at low altitude, the coastal zone, the mountains of East Java (cf. No. 44, *Euonymus japonicus*, and No. 60, *Berberis wallichiana*) and the mountain forest of West Java.

As, of course, only very selected plants were drawn, his collections comprised many more than the 270 species depicted and he must have possessed a unique field knowledge of the Javanese flora, rivalled only by that later acquired by Horsfield, Junghuhn and Zollinger.

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[1] Cf. *Bull. Jard Bot. Buitenz.*, Ser. 3, **13** : 519 (1936); *Fl. Males.* 1, Ser. I, **4**^{2} : 62–63 (1949).

4. LIST OF DESCHAMPS'S MS. PLATES WITH THEIR IDENTIFICATION

Most of the plants could be identified as far as the family. Out of 271 (No. 196 is a plate with 2 pictures) only 12 remain entirely unidentified (Nos. 11, 35, 37, 78, 81, 84, 122, 134, 150, 161, 227, 228), 13 are only referred to a family, 49 numbers could be assigned with a degree of finality to the genus only, and 197 could be referred to a species with reasonable accuracy. Sometimes we added a short note, either on the species or on the specific name.

The Latin names added by Deschamps on the drawings are placed in the first column between quotation marks.

Deschamps was apparently sometimes in need of drawing-paper as No. 2 is drawn on the back of No. 1, No. 24 is found on the back of 23 and unfinished sketches are found on the backs of other sheets.

Some plates are drawn twice, as No. 58 is apparently the same as No. 9 and No. 105 is the same as No. 24.

Though some numbers apparently represent mixtures (No. 25, No. 134) and the leaves of No. 62, *Spondias pinnata* (L.f.) Kurz, are drawn as uneven-pinnate, most pictures are very skilfully done, and the details of flowers and fruits bear witness of the love and care Deschamps bestowed on his drawing.

Numbers in the first column marked with an asterisk indicate that the plate is a water-colour drawing.

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
1. *pantawalan*	ALYSICARPUS BUPLEURIFOLIUS (L.) DC.	*tebalan* is a common name for *Alysicarpus* spp.
2. *kakas*	HIPTAGE BENGHALENSIS (L.) Kurz (on the back of No. 1)	—
3. *bankon*	PITHECELLOBIUM cf. FAGIFOLIUM Bl. ex Miq.	*bangkong*, J.[1]
4. —	PIPER NIGRUM L. (on the back of No. 3)	—
5. *kadelen*	ATYLOSIA SCARABAEOIDES (L.) Benth.	*kedelen*, J.
6. *nomkatiisan*	AESCHYNOMENE TRACHYLOBA Miq.	*katisan*, J.
7. *manieran wono* (*wono* = wild)	SMITHIA SENSITIVA Ait.	native name wrong
8. "*Poutio communis*"	PANGIUM EDULE Reinw.	*putjung*, J.
9. —	ALEURITES MOLUCCANA (L.) Willd. (sketch only, on the back of No. 8)	—
10. *kantjilan*, "*Tricarpon tripsacum*"	TETRACERA INDICA (Christm. & Panz.) Merr. (*T. assa* DC.)	—

[1] J. stands for the Javanese language, S for Sundanese, Md. for Madurese.

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
11. *nampo*	Quid ? Habit like Calophyllum, fruit 7-celled, with 7 deep grooves, large, inferior, thick exo- and endocarp	—
12. *zekkardangan*	Vallaris glabra (L.) Kuntze (*V. pergulana* Burm. f.) (cultivated only)	*dondong*, S. (*sekar* = flower)
13. *djemporan*	Trevesia sundaica Miq.	—
14. " *Dilennea* "	Dillenia pentagyna Roxb.	misspelt Latin word
15. " *Capparis* "	Cadaba capparoides DC. (rare, in East Java only)	—
16. *mojoo*	Aegle marmelos (L.) Correa	*madja*, J.
17. —	Allophylus cobbe Bl. *sens. lat.*	—
18. —	Hippocratea ? macrantha Korth	—
19. —	cf. Tephrosia dichotoma Desv.	—
20. " *Mimosa aquatica* "	Neptunia oleracea Lour.	—
21. *tomtoman*	Indigofera hirsuta L.	*tom* = *Indigofera*, *tomtoman* is used for several spp. incl. this one.
22. —	Rubus lineatus Reinw. *ex* Bl.	—
23. *pate*	Parkia speciosa Hassk.	*peté* or *petéh*.
24. *manis jangan*	cf. Cinnamomum burmanni Bl. (on back of No. 23)	*manis djangan*, J.
25. " *Cassia monophilla* "	Leaf like that of Crotalaria retusa L., flower of Cassia occidentalis L.; ? *mixtum*	—
26. —	Cassia javanica L.	—
27. *tajoeman*	Bauhinia hirsuta Weinm.	*tajuman*, J.
28. " *Hedera tomentosa* "	Schefflera sp.	—
29. *djomboek*	Xylocarpus granatum Koen.	*djomba*, J.
30. " *Philanthus* "	Sauropus spectabilis Miq.	—
31. —	Actinidia callosa Lindl. (occurs only in West Java)	—
32. *cadjioe tai*, "*Evonymus stercorarius* "	cf. Geniostoma miquelianum Koord. & Valet. (The native name alludes to the fetid odour of Lasianthus and other Rubiaceae, but the plate suggests Geniostoma)	—
33. *kipadali*	cf. Turpinia pomifera (Roxb.) DC.	vernacular name is wrong and is that of *Radermachera*.
34. *gadangan*	Uvaria rufa Bl.	—
35. " *Anensa javanica* "	? Euphorbiacea: cf. Ostodes	—
36. —	Sarcococca saligna (D. Don) Muell. Arg.	—

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
37. *"Melacephala montana"*	? Euphorbiacea	—
38. —	Xanthophyllum vitellinum (Bl.) Nees	—
39.* —	Hydrangea macrophylla (Thunb.) Ser. (*H. opuloides* (Lam.) C. Koch; *H. hortensia* Sieb.) (the cultivated plant)	—
40. *joeroekan*	Micromelum pubescens Bl.	*djeroekan* (similar to "*djeroek*" = citrus)
41. *tyamboe aer mawar poetie*	Syzygium aqueum (Burm. f.) Alston	*djamboe aer*
42. —	Adenostemma lavenia (L.) Kuntze *sens. lat.*	—
43. —	Otophora alata Bl. (a native from Borneo)	—
44. —	Euonymus japonicus Thunb.	—
45. —	Evodia sp.	—
46. —	Begonia cf. isoptera Dryand.	—
47. *nogosari*	Mesua ferrea L. (not native in Java)	—
48. *? claion*	cf. Arytera littoralis Bl.	—
49. —	Pimpinella javana DC.	—
50. *? tpons*	Oenanthe javanica DC.	*tèspong*
51. *lansap*	Lansium domesticum Correa	*langsap*
52. —	Antidesma ghaesembilla Gaertn.	—
53. *"Acuticarpon littorale"*	Tristellateia australasiae A. Rich.	—
54. *prouóco*	Gaultheria leucocarpa Bl.	*purwo*, J.
55. *"Elaeocarpus serrata"*	Elaeocarpus grandiflorus Sm.	—
56. *bajor, "Penthapethes"*	Pterospermum javanicum Jungh. (Soehati del.)	*bajur*
57. *"Bombax lobatum"*	Cochlospermum religiosum (L.) Alston (This species has never been found in Java as yet. Identification unquestionable)	—
58. *pogon kamirie, "Camirium"*	Aleurites moluccana (L.) Willd. (nearly the same as No. 9)	*kemiri*
59. *tayoeman*	Tinospora coriacea (Bl.) Beumée (*Cocculus coriaceus* Bl.)	*tajuman*
60. *"Berberia"*	Berberis wallichiana DC. (typical high mountain plant)	—
61. *genitri*	Elaeocarpus sp.	*ganitri* is used for more than one sp.
62. *kedondon*	Spondias pinnata (L.f.) Kurz (*S. mangifera* Willd.) (leaves wrongly drawn)	*kedongdong*
63. *sadan*	Passiflora horsfieldii Bl. (a rare species; cf. itinerary)	—

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
64. “*Melanostoma an laevigata*”	MEDINILLA JAVANENSIS (Bl.) Bl.	—
65. “*Melanostoma*”	MEDINILLA LAURIFOLIA (Bl.) Bl.	—
66. *ki arendon*	MACROLENES MUSCOSA (Bl.) Bakh. f. (*Marumia muscosa* (Bl.) Bl.)	*ki harèndong*, a common name for several genera and spp. of *Melastomataceae.*
67. —	RUBUS ALCAEIFOLIUS Poir.	—
68. *dialingan*	RUBUS ROSIFOLIUS Sm.	*tjalingan*, J.
69. “*Anona*”	FISSISTIGMA LATIFOLIUM (Dunal) Merr. (*Melodorum latifolium* (Dunal) Hook. f. & Thoms., non Bl.)	—
70. *Kala*	DESMOS CHINENSIS Lour. (*Unona discolor* Vahl)	*kalak* is a general name for *Annonaceae* and for this one
71. “*Michellia*”	CANANGA ODORATA (Lam.) Hook. f. & Thoms.	—
72. “*Michellia*,” “*S.N.*”	TALAUMA CANDOLLII Bl.	—
73. “*Feberina excelsa*,” *tivo soureso*	MELIOSMA sp. (The fruits do not agree with the detail drawings)	*ki tiwu*, S. (for *Meliosma*)
74. “*Rhedia*”	? CALOPHYLLUM sp.	—
75. “*Solitaria javanica*”	HARRISONIA BROWNII Juss.	—
76. *panpon*	SCHEFFLERA sp.	—
77. *wadon*	GARCINIA sp.	*wadon*, *wadung*, J.
78. “*Ornitope*”	? SAPINDACEA ? TURPINIA	—
79. “*Dodonea*” “*Ptelea viscosa*”	DODONAEA VISCOSA Jacq.	—
80. “*Coocktia*”	? CLAUSENA HARMANDIANA Pierre (*C. olivieri* Koord.)	—
81. “*Ceanothus*”	Quid ?	—
82. *djirac*, “*prunus tinctoria*”	SYMPLOCOS sp.	*djirek*, J., *djirak*, S.
83. *sasa*	SYMPLOCOS sp.	*sasah*, S.
84. *k. binia ?*	Quid ? (The opposite pinnate leaves suggest TURPINIA)	—
85. “*olax*”	OLAX SCANDENS Roxb. (beautiful detail analysis)	—
86. —	BRUCEA AMARISSIMA (Lour.) Desv.	—
87. *blé kétébé*	SLOANEA SIGUN (Bl.) Szysz.	*bêlêkêtèbèk*, S.
88. *labo walou*	TRICHOSANTHES ANGUINA L.	native name is wrong
89. “*Melanostoma*”	CREOCHITON BIBRACTEATUS (Bl.) Bl.	—
90. *kadondon* “*Erythrosperma glabra*”	LANNEA COROMANDELICA (Houtt.) Merr. (*L. grandis* (Dennst.) Engl.)	—
91. “*Cissus trilobus S.N.*”	? CISSUS aff. REPENS Lam.	—

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
92. —	EHRETIA MICROPHYLLA Lam. (*E. buxifolia* Roxb.)	—
93. —	HYDRANGEA ASPERA D. Don (*H. oblongifolia* Bl.)	—
94. *"Overstratia"*	SAURAUJA sp.	—
95. *omor bohot*	KADSURA SCANDENS (Bl.) Bl.	—
96. *"illecebrum indicum"*	ALTERNANTHERA SESSILIS (L.) Sweet.	—
97. *patma*	RAFFLESIA PATMA Bl. (male) (This is the first record of the genus, being earlier than that of Horsfield)	—
98. *patio*	PIPER SULCATUM Bl. (*P. nigrescens* Bl.)	—
99.* ("T 191")	PIPER cf. MAJUSCULUM Bl.	—
100. *maritja, "Piper pallidum"*	PIPER NIGRUM L.	*maritja* (common name for pepper)
101. —	PIPER sp. (tinged with E.I. ink)	—
102. *comoncoan, "Piper cucubea"*	PIPER sp.	—
103.* ("194") *"Myristica"*	MYRISTICA FRAGRANS Houtt. (small size picture)	—
104. *"Myristica,"* "vol. 2, tab. 6"	MYRISTICA FRAGRANS Houtt.	—
105. *manis jangan, "Laurus"*	CINNAMOMUM BURMANNI Bl. (Same as pl. 24)	—
106. *"Laurus cunifolia"*	LITSEA cf. DIVERSIFOLIA Bl.	—
107. *kandon*	HELICIA SERRATA Bl.	*kendung*, Md., *kendang*, J.
108. *"Lorhanthus"*	MACROSOLEN cf. PSEUDOPERFOLIATUS Miq. (only known from East Java)	—
109. *Djndana, "Santalum album"*	SANTALUM ALBUM L.	*tjandana, tjendana*, J.
110. *upas, "antiar"*	ANTIARIS TOXICARIA Lesch. (male) (the famous poisonous tree)	*upas*
111. *upas, "deletaria"*	ANTIARIS TOXICARIA Lesch. (female)	*upas*
112. *"Carimbonca sylvatica"*	NERTERA GRANADENSIS (L.f.) Druce (*N. depressa* Banks ex Sol.) (beautiful details of the minute flowers)	—
113. *kamadon, "Pyreenia urens"*	LAPORTEA STIMULANS Miq.	*kamaduan* (= burning)
114. *"Ficus axillaris"*	FICUS VARIEGATA Bl.	—
115. *"Ficus parvifolius"*	FICUS PUNCTATA Thunb.	—

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
116. *saruban*, "*Bisphaeria*"	Poikilospermum suaveolens (Bl.) Merr. (*Conocephalus suaveolens* Bl.) (female specimen)	—
117. *crambi*, "*crambinum*"	Homalanthus populneus (Geis.) Pax	*karumbi*
118. *sarangan*, "*fagus indica*"	Quercus sp.	—
119. "*gandria acida*"	Bouea macrophylla Griff.	*gandaria*
120. *oeran oeroengan*	Urticacea: either Pouzolzia, Maoutia or Debregeasia	name for various *Urticaceae*
121. *hàmbaran*	Ficus padana Burm. f. (*F. toxicaria* L.)	*hambaran*
122. —	? Casearia sp.	—
123. *gondopouro*	Gaultheria fragrantissima Wall.	*gandopouro*, J.
124. —	Clerodendrum serratum Spr.	—
125. *koffie* (Dutch !)	Coffea arabica L.	—
126. —	Gmelina elliptica Sm. (*G. villosa* Roxb.)	—
127. —	Limnophila pinnatifida Bl.	—
128. "*Ruellia*"	Allaeophania rugosa (Bl.) Boerl. or Spermacoce hispida L.	—
129. *tingigonnon*, "*Erica*"	Gaultheria nummularioides D. Don (The name *tingigonnon* means: "from high mountains" alluding to the microtherm habitat)	—
130. "5 *dria*"	Dipterocarpus sp. (In Java 5 species occur, some of which are closely allied)	—
131. —	Diplycosia heterophylla Bl.	—
132. *momal*	Sapotacea	—
133. *tankoro*	? Ostodes paniculata Bl.	—
134. *amprou badak*	Quid ? (*hamperu badak* is used for Voacanga and Tabernaemontana. The plate suggests Rubiaceae, but the leaves are drawn alternate)	—
135. "*Justicia javanica*"	Rhinacanthus nasuta (L.) Kurz	—
136. "*Justicia*"	Eranthemum sp.	—
137. *cosma*, "*Garcinia*," "*Diospyros*"	Diospyros (cf. aurea Teijsm. & Binnend)	—
138. "*Pergularia*"	Telosma (Pergularia) sp.	—
139.* —	Saurauja pendula Bl.	—
140.* —	Saurauja bracteosa DC.	—
141.* —	Jasminum crassifolium Bl. (beautiful plate; only in West Java mountains)	—
142.* —	Ixora javanica (Bl.) DC.	—

Number of plate and name by Deschamps		Present botanical identification	Current vernacular name or comment on those given by Deschamps
143.	—	Orophea hexandra Bl.	—
144.	—	Psychotria, Hypobathrum or allied genus (The leaves are not all drawn as strictly decussate)	—
145.	*sombon buma*	Gesneriacea ? Rhynchothechum sp. or Cyrtandra sp.	—
146.	"*Rhododendrum*"	Rhododendron javanicum (Bl.) Benn.	—
147.	—	Millingtonia hortensis L.f. (only in East Java)	—
148.	—	Rhododendron retusum (Bl.) Benn.	—
149.	"? *Morphea*"	Fagraea cf. auriculata Jack	—
150.	*gatie boentoet, "Plutonea"*	Fagraea or Verbenacea	—
151.	*kalei kambin*	Tabernaemontana sphaerocarpa Bl.	—
152.	"*Diannea intergra*" "st. 2"	Didymocarpus asperifolius (Bl.) Bakh. f. (Good drawing, leaves anisophyll, stamens 2)	—
153.	"*Ligustrum racemosum*"	Ligustrum glomeratum Bl.	—
154.	*Melati costa, "Gerardia"*	Jasminum sambac (L.) Ait.	—
155.	"*Pinguicula unibracteata, Garrisonniana*"	Epithema sp.	—
156.	? "*Germinalia*"	Dichroa febrifuga Lour. s.l.	—
157.	"*arbutus*"	Vaccinium ? laurifolium Miq.	—
158.	? *manin idio, "Arbutus"*	Vaccinium varingifolium (Bl.) Miq.	—
159.	"*Pyrostria*"	Meyna spinosa Roxb. ex Link	—
160.	"*Psychotria*"	Psychotria sp.	—
161.	"*Gentiana verticillata*"	Quid ? an Olacacea ?	—
162.	"*Mellia*"	Acanthacea ? Dipteracanthus	—
163.	"*Pergularia*"	Beaumontia ?	—
164.	"*Micocaula L.*"	Schoutenia ?	—
165.	"*Elictres isora*"	Helicteres viscida Bl.	—
166.	"*Solanum spictatum*"	Ardisia sp.	—
167.	*cronlack, "ippomea bona nox"*	Ipomoea aculeata Bl.	—
168.	*kionga, "Eneia, St. 5"*	Pittosporum monticola Miq.	—
169.	*kakas, "Molinda L.M.," G.N.*	"Hiptage benghalensis (L.) Kurz" (*H. madablota* Gaertn.) Apparently supposed to be a new genus by Deschamps himself.	—
170.*	"*Azalia indica*"	Rhododenron indicum Sw.	—

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
171. "*Garcinia*" "*Diospyros*"	Diospyros sp.	
172. *goundo*, "*ysseldithia*," "*Cussonia*"	Sphenoclea zeylanica Gaertn. (Deschamps had apparently the intention to call this plant after Mr. Ijsseldijk with whom he had associations).	—
173. "*Eclyptica*"	Adenostemma lavenia (L.) Kuntze *sens. lat.* (same species as in pl. 42)	—
174. *blontas*, "*Baccharis indica*"	Pluchea indica (L.) Less.	*beluntas*
175. —	Pothos sp. (on back of pl. 174; rough sketch)	—
176. "*Orobanche*," "*Cor. coccinea*"	Aeschynanthus longiflorus (Bl.) DC.	—
177. "*Orobantha*"	Aeschynanthus radicans Jack (*A. pulcher* Don)	—
178. "*Coelestia cerulea*"	Rhynchoglossum obliquum Bl.	—
179. "*Balansa pinnata*"	Dysoxylum sp.	—
180. "*Balanea*"	Polyosma sp.	—
181. "*Ecbolium*," "*Justicia*"	Eranthemum viscidum Bl.	—
182. "*Gratiola pediculata S.N.*"	Curanga fel-terrae (Lour.) Merr. (*C. amara* Juss.)	—
183. *soenlar*, "*Convulvulus*"	Porana racemosa Roxb.	—
184. *caiou api*	Avicennia sp.	*kaju api*
185. "*Solanum*"	Ardisia sp.	—
186. "*Ligustrum*," "*Echites parviflora*"	Apocynacea	—
187. "*Richia*"	Tabernaemontana cf. floribunda Bl.	—
188. "*Norona littorea*"	Salacia sp.	
189. "*Norona parviflora*"	Salacia sp.	—
190.* *rahengas*, "*Manga deletaria*"	Gluta renghas L.	*rengas*
191. "*E. Luteo-rubrum*"	Renanthera matutina (Bl.) Lindl. *vel aff.*	—
192. "*Epidendrum scriptum*"	Arachnis flos-aeris (L.) Reichb. f. (*Arachnanthe moschifera* (Bl.) Bl.)	—
193. —	Cymbidium cf. finlaysonianum (Bl.) Lindl.	—

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
194. "*Epidendrum grandiflorum*"	Phalaenopsis amabilis (L.) Bl.	—
195. "*E. taxifolium*"	Appendicula sp.	—
196*a*. "*E. minus*"	Bulbophyllum sp. (with No. 196*b* on one plate)	—
196*b*. "*E. spicatum*"	Oberonia sp.	—
197. —	Cryptostylis arachnites (Bl.) Hassk.	—
198. "*E. dissectum*"	? Eulophia squalida (Bl.) Lindl.	—
199. —	Arundina graminifolia (D. Don) Hochr. (*A. speciosa* Bl.)	—
200. —	Dendrochilum sp.	—
201. "*E. bulbiflorum*"	Philidota sp.	—
202. —	Dendrobium tetraedre (Bl.) Lindl.	—
203. "*E. caninum*"	Dendrobium sp.	
204. "*E. parvifolium*"	Spathoglottis sp.	—
205. "*E. bracteatum*"	Appendicula cf. pendula Bl.	—
206. "*E. flos aeris*"	Trichoglottis retusa Bl.	—
207. "*Ep. pendulum*"	Trichoglottis vel Eria sp.	—
208. "*Ep. disticus*"	Dendrobium aff. aloifolium (Bl.) Reichb. f.	—
209. "*Ep. furcum*"	Vanda cf. tricolor Lindl.	—
210. "*E. medium*"	Ascocentrum miniatum (Bl.) Schlechter	—
211. "*tenuifolium*"	Sarcanthus cf. apiculatus J. J. Sm.	—
212. "*E. elegans*"	Aerides odorata Lour. (*A. suaveolens* Bl.)	—
213. —	? Calanthe sp.	—
214. "*E. ramosum*"	Acriopsis javanica Reinw. ex Bl.	—
215. "*E. tuberosum*"	Phaius tancarvilleae (Banks ex L'Hérit.) Bl.	—
216. "*Ep. fulvum*"	Spathoglottis affinis De Vriese	—
217. "*E. rubrum*"	Coelogyne miniata (Bl.) Lindl.	—
218. "*E. tomentosum*"	Eria cf. albidotomentosa (Bl.) Lindl.	—
219. —	Dendrobium cf. mutabile (Bl.) Lindl.	—
220. —	Zingiber sp.	—
221. "*Amomum cardamomum*"	Zingiberacea	—
222. —	Kaempferia sp.	—
223. —	Arthrocnemum indicum (Willd.) Moq.	—
224. "*Costus arabicus*"	Costus speciosus Sm.	—

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
225. —	CURCUMA sp.	—
226. " *Marantacia galanga* "	ALPINIA GALANGA (L.) Stuntz	—
227. —	? ZINGIBERACEA	—
228. —	Quid ? (drawing too sketchy)	—
229. *tonta*	ZINGIBER sp.	*tongtak*, S.
230. " *Marantacia malaccensis* "	ALPINIA sp.	—
231. " *Marantana minor* " *djankra*	GLOBBA STROBILIFERA Zoll. & Mor.	—
232. *tommo contji* " *Kaempferia rotunda*	KAEMPFERIA ROTUNDA L.	*kuntji*
233. *gandosouly*, "*Kaempferia hedychium* "	HEDYCHIUM sp.	*gandasuli*
234. *bangli*, " *Amomum cardanum* "	AMOMUM sp.	*banglai* or *banglé* is sometimes used for *Zingiberaceae sens. lat.*
235. *lankoas*, " *Marantana galanga* "	ALPINIA sp.	*langkuwas* is a general name for *Alpinia* spp.
236. *tpous*, " *Amomum giganteum* "	PHAEOMERIA SPECIOSA (Bl.) Koord. (*Nicolaia speciosa* (Bl.) Horan.)	*tepus* is general name for *Amomum*, *Achasma*, etc.
237. " *Amomum cardamoides S.N.*"	ZINGIBERACEA	—
238. *wonsa*, " *Amomum glabra* "	AMOMUM MAXIMUM Roxb.	—
239. " *Amomum giganteum* "	PHAEOMERIA SPECIOSA (Bl.) Koord. (*Nicolaia speciosa* (Bl.) Horan.)	—
240. *capoloys*, " *Amomum cardamum* "	ZINGIBERACEA	—
241. *tpus*, " *Am. coccineum S.N.*"	AMOMUM COCCINEUM (Bl.) Benth. & Hook.	*tepus*
242. " *Asphodellus* "	DIANELLA ENSIFOLIA L.	—
243.* *toulan*	GLORIOSA SUPERBA L.	*sungsang*
244. " *Uvularia* "	DISPORUM CANTONIENSE (Lour.) Merr. *sens. lat.* (*D. pullum* Salisb., *D. chinense* Sabine, etc.)	—
245. " *Pontederia* "	MONOCHORIA VAGINALIS (Burm. f.) Kunth	—
246. " *Dracontium* "	LASIA SPINOSA (L.) Thw.	—
247. " *Arum probocidum* "	TYPHONIUM FLAGELLIFORME (Lodd.) Bl.	—
248. *sampi*	LASIA SPINOSA (L.) Thw.	—
249. " *Arum* "	CRYPTOCORYNE CILIATA Fisch. ex Wydler	—
250. *terkoso*	POTHOS sp. (The same figure as pl. 175)	—
251. " *Cocos* "	COCOS NUCIFERA L.	—

Number of plate and name by Deschamps	Present botanical identification	Current vernacular name or comment on those given by Deschamps
252. *saguaster*	Arenga pinnata (Wurmb) Merr.	—
253. “ *sirasi, airana aquatica* ,,	Areca catechu L.	—
254. *saguaster*	Metroxylon sagu Rottb. *sens. lat.*	—
255. “ *Cocos* ”	Cocos nucifera L.	—
256. *senti*	Palma (a species of rattan)	—
257. “ *Calamus cuneifolius* ”	? Korthalsia robusta Bl.	—
258. “ *Calamus minor* ”	Calamus sp.	—
259. “ *Calamus bracteatus* ”	Plectocomia elongata Mart. ex Schult.	—
260. —	Arenga pinnata (Wurmb) Merr.	—
261. “ *Sagus inermis* ”	Metroxylon sagu Rottb. *sens. lat.* (on the back of this plate is a faint sketch of pl. 37)	—
262. *saguaster*	Arenga pinnata (Wurmb) Merr.	—
263. *birou* “ *Corypha* ”	Licuala spinosa Wurmb (*L. spectabilis* Miq.)	—
264. —	prob. Oncosperma filamentosum Bl.	—
265. —	? Daemonorops sp.	—
266. *pinang bimbing* “ *Areca silvestris* ”	Pinanga kuhlii Bl.	*bingbing*
267. *pinang rendu* “ *Areca minor* ”	Palma ? Pinanga sp.	—
268. *Simbar mèndiangan* “ *Ophioglossum pendulum lum N.*”	Platycerium bifurcatum (Cav.) C. Chr.	—
269. *pakis oling*	Dipteris conjugata Reinw.	—
270 “ *Phallus reticulatus* ”	Dictyophora indusiata (Vent.) Desv.	—

This is the story of the extensive and intelligent labours in Java of Louis Auguste Deschamps, whom ill fate deprived of all the results of his five years' research in Java when in sight of his homeland. But for the misfortune of losing his material, Deschamps would certainly have been first, by many decades, to reveal the treasures of the Javan flora.[1]

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[1] The only published notes by Deschamps on his exploration in Java known to us appeared in Malte-Brun, *Ann. Voyages*, vol. I (1809). The notes were published under the general title “ Extrait d'un voyage inédit dans l'intérieur de l'Isle de Java.” Only two have been published. The first deals with “ Notice sur le pohon upas ” (l.c., pp. 60–74). He mentions the occurrence of *Antiaris toxicaria* Lesch. in East Java, states that the resin is used as dart poison, but he rejects the fabulous stories told about this plant. He states further that Rumphius's plates of the flowers are wrong, and he gives a new description of the male and female flowers himself. The origin of the fabulous stories he traced to a custom of sending criminals to the *Antiaris* locality without food and clothes. The latter circumstances caused their death.

The second is mainly ethnographic and is named “ Moeurs, amusements, et spectacles Javanois ” (l.c., pp. 145–168). There are some notes on the “ tuba ” (*Derris*) which he calls *Glycine frutescens*.

The authors wish to express their gratitude to the Keeper of Botany, British Museum, for enabling them to make these historic notes, and especially to the Trustees of the British Museum, who kindly gave their permission to have the precious plates studied in detail in Holland by Dr. Backer, expert on the Javan flora, and myself. Thanks are also due to Dr. E. D. Merrill, who read the MS. of this paper and made many valuable suggestions, and to Dr. R. C. Bakhuizen van den Brink, Leyden, for several nomenclatural corrections of the Latin names.

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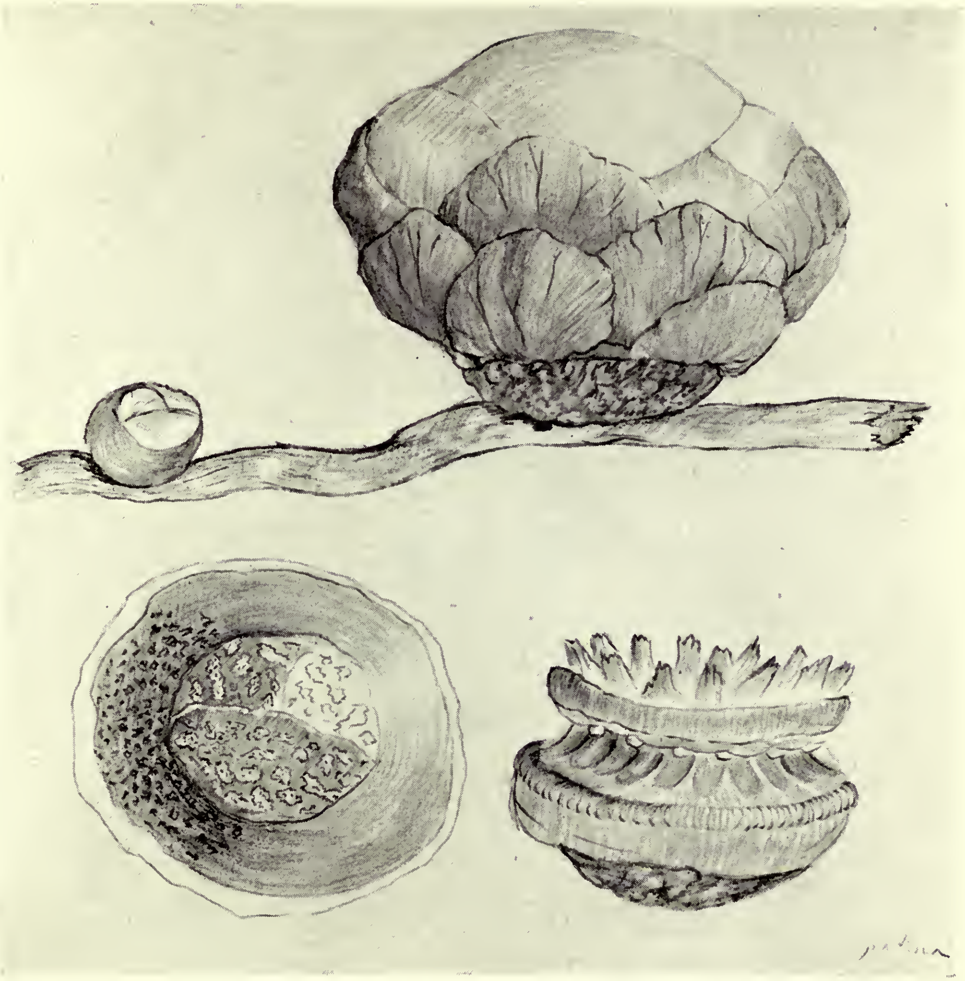

PLATE 13.—Reproduction of the original drawing by Deschamps of *Rafflesia patma* Bl. in Java. In all probability Deschamps was the first white man to see and examine *Rafflesia* (1797), twenty years before Arnold found another species in Sumatra, and 27 years before the same species was recollected in Nusa Kambangan by Blume.

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GUY L. WILKINS

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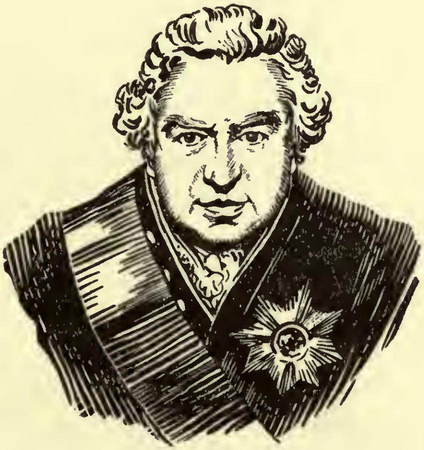

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SYNOPSIS

In the following pages an attempt has been made to describe and catalogue the shell collection of Sir Joseph Banks, presented to the British Museum by the Linnean Society of London in 1863, and untouched since that time. Although comparatively small and incomplete, this unique collection is of historical interest in that it contains much of the original material collected during Captain Cook's first voyage round the world (1768–1771).

This material, together with specimens given to Banks by several of his contemporaries, has recently been identified and correlated with Solander's original manuscript labels and descriptions. The plates include reproductions of a complete drawer of specimens, pages from the Solander manuscripts, accompanied by the original shells described thereon (including three Lectotypes), and a selection of specimens collected during the voyage of the " Endeavour."

1. ORIGIN, SCOPE AND GENERAL DESCRIPTION OF THE COLLECTION

Before the establishment and appreciation of great public museums, it was the custom of most learned societies to endeavour to maintain collections relating to their particular activities, a custom which invariably led to acute embarrassment regarding storage space, efficient custody, and curating. The Linnean Society of London, founded in 1788, was no exception to this general tendency, having accumulated collections stowed away in attics and store-rooms where few ever entered

(Gage, 1938, p. 124), and it was not until 1863, during the presidency of Thomas Bell, that at last the decision was taken to reduce the Society's collections to manageable proportions.

Some collections were consequently distributed to several Natural History societies in the north of England; others, including the Banks shell and insect collections, were sent to the more commodious, but overcrowded quarters of the British Museum (then at Bloomsbury), the remainder of unwanted collections being sold at Stevens' Auction Rooms in November 1863.

Nothing appears to have been recorded since the bare statement of the receipt of the Banksian shells in the Annual Reports of the British Museum, and the *History of the Collections* (1912, p. 19) for the year 1863. It must be presumed that the collection, which admittedly could never have looked inviting, was put aside to be dealt with at some later date, thereby eventually losing its original identity and even becoming known (within living memory), as the " Hanley Collection." According to a list of donations to the collections of the Linnean Society published in Volume XI of the *Transactions* in 1815 (p. 430), " An extensive collection of shells" was presented to the Society by Sir Joseph Banks, but, apart from this brief statement, there is no indication of the size of the collection, whether it comprised one or more cabinets, or the approximate number of specimens. Even the actual date of presentation is uncertain, for in those days a complete volume of the *Transactions* covered a period of several years, so the conclusion is that it was presented at some date between the publication of Volume X of the *Transactions* in 1811, and Volume XI in 1815. William Swainson, writing in 1820 (text to plate 23), the only contemporary author so far known to have actually used the collection, completes the description of a new species of *Mitra* with the following paragraph: " This superb shell is figured from the matchless specimen brought home by that illustrious and lamented patron of science, the late Sir J. Banks, from the Pacific Ocean; it is now, together with his entire collection of shells and insects, in the Museum of the Linnean Society." It has already been stated in the synopsis to this paper, that the collection as it now stands is evidently incomplete; further comparison with Solander's manuscript shows several genera to be entirely missing, and it is suggested that the Banks collection may have been inadvertently divided in 1863, the missing portion perhaps being sold in the auction sale recorded above.

In view of Swainson's statement that Banks's entire collection of shells was in the Linnean Society's museum in 1820, it seems unlikely that any came to the British Museum with the Banksian library and collections in 1827, as was supposed by Edgar Smith (1906, p. 704); certainly no shells that can be identified as Banks' material have been found in the Museum collections, apart from the present series.

The collection fills seven drawers of a small ten-drawer cabinet, each drawer fitted with a sliding wooden dust-cover, a typical feature of the eighteenth-century specimen-cabinet (*fide Portland Sale Catalogue*, 1786, Lot 1728: " A small mahogany shell cabinet, with seven drawers and covers "). The shells are placed in metal containers, made in multiples of four, to fit the drawers, a feature that led to the suspicion of some connexion with the collection of Linné, who is known to have stored his specimens in similar containers (Gage, 1938, p. 128). As the collection was alleged to have belonged to Sylvanus Hanley (1819–1899), it might easily be supposed that he had either annexed the Linnean containers, when discarding them during his work on Linné's shells in the 1850's (Jackson, 1888, p. 32), or that he had characteristically adopted the same method in his own collection to emulate the immortal Swede.

The possibility that Hanley may have purchased these shells at the sale in 1863 has not been overlooked, but it is inconceivable that such an ardent collector and voluminous author could have left them untouched for over thirty years ; moreover, Hanley's main collection is known to have been sold in 1900 to Henry Harvey, a dealer in Houndsditch, only a few type specimens being purchased by the British Museum.

The very early nomenclature appearing on the first few labels examined, however, showed the collection to belong to a much earlier period than Hanley, subsequent comparison with the Solander manuscripts proving beyond any doubt that this was the Banks collection received from the Linnean Society in 1863, and that the metal containers were probably the direct result of Solander's familiarity with the Linnean cabinet during his student days in Sweden. One of the many containers from which the shells were removed by Hanley, has been photographed beside the neater and improved model, which could be used for either deep or shallow specimens simply by reversing, a label flap being provided at the base as well as at the top of the container (fig. 2 and 3). Incidentally, the containers are lined with blue-coated paper, bearing traces of the same *Pro-Patria* watermark that appears on many of Solander's manuscript sheets.

The general condition of the shells is good, except in a few instances where they are rust-marked through contact with the sides of the metal containers ; quite a number of specimens still retain the periostracum, and in some the opercula are still in place ; conditions which suggest that they were taken alive by Banks and Solander during their collecting trips from the " Endeavour." Like most of Solander's work, the collection was left in an unfinished condition, for although the labels in the containers are numbered consecutively in each drawer, only a proportion have been completed with name and locality ; some bear the name only, scrawled roughly on scraps of paper torn from old letters (one such scrap still bears part of a superscription directed to Dr. Solander in London) ; others have the localities only, in full or abbreviated, while in the drawer containing the Muricidae, many of the labels have only the number of the container in the drawer. It is obvious from the writing on the labels that help was given by another person, for Solander's rough labels, together with fair copies in an as yet unrecognized hand, are sometimes found in the same container.

Solander died in 1782, so that the nomenclature he used is confined to the narrow limits of the Vermes Testacea in the 12th edition of the *Systema Naturae* (vol. 1, pt. 2, 1767) ; therefore many species in the collection that did not occur in this work were given a name by Solander who marked the label " MSS " and recorded the full decription in the manuscript of his projected revision of the *Systema* ; a task that was incomplete and unpublished at the time of his sudden death.

This revision was compiled at a time when great strides were being made in all departments of Natural History, but even so, it is revealing to find on examining Solander's manuscripts that, in the mollusca alone, the genus *Venus* totalled 120 species, compared with the modest thirty-eight described by Linné. The surviving portion of the Banks collection contains 1120 specimens in all (392 species) distributed by Solander among seven Linnean genera, allotted to the seven drawers as follows:

Drawer	Linnean genus	Number of specimens	Recently identified species of various genera
1	Venus (1)	120	47
2	Venus (2)	114	53
3	Ostrea	99	35
4	Mytilus	170	58
5	Conus	144	41
6	Cypraea	214	55
	Bulla	57	19
7	Murex	202	84
		1120	392

2. CONTEMPORARY COLLECTIONS AND EFFORTS TO TRACE THEM

A striking feature of the surviving Banks shells is the complete absence of any of the large and showy Volutes, Turbos, and Murices so frequently referred to in auction sale catalogues and conchological works of the period; a feature that suggests that these rather small specimens may have been pocketed quite casually by Banks and Solander on the way across beaches on their botanizing expeditions. After all, botany was one of the former's main reasons for accompanying Cook in the "Endeavour," and it is fairly certain that the collecting of the larger marine shells and corals was left to the officers and crew, who undoubtedly distributed these novelties to the many ardent collectors on returning home, to mutual advantage. The Portland collection was certainly enriched in this way, also that of Thomas Martyn, author of the elaborate *Universal Conchologist*, in the preface to which (vol. 1, p. 26, 1784) he records that it was the purchasing of many new species of shells from several officers "lately returned from the Pacific Ocean", that induced him to produce this "Laborious, Expensive, and Arduous undertaking".

While it is possible to trace the vicissitudes of some of the conchological specimens brought to this country from Cook's voyages by Banks and others, in contemporary sale catalogues, i.e., Humphrey (1779); Portland (1786); Calonne (1797); Lever (1806) and Bullock (1819), the present location of the actual specimens (except in a few instances) is extremely difficult, if not impossible, to determine, enquiries based on the most reliable of contemporary records frequently giving completely negative results.

A particular example of this kind of enquiry is a recent attempt to locate the shell collection of the well-known Quaker physician, Dr. John Fothergill (1712–1780), which was said to be second only in importance to the Duchess of Portland's, and certainly contained shells collected during Cook's first voyage by one of Banks's assistants, Sydney Parkinson, also a Quaker. This gifted young artist died from the appalling fever contracted by so many of the ship's company at Batavia towards the end of 1770, and thus the subsequent ownership of his collections and journals became the subject of bitter controversy between Banks and Sydney's excitable and mentally unbalanced brother Stan~~s~~field Parkinson. The whole miserable story of this controversy, during which Fothergill, as a prominent Quaker, was called in to mediate, is told in the preface to Parkinson's *Journal of a Voyage to the South Seas*, first published in 1773, and in a second edition circulated by Fothergill in 1784, after Stan~~s~~field's death, with a further preface in which he (Fothergill) sought to dispel the unpleasant and unfounded accusations appearing in the original. The outcome of the good doctor's efforts at mediation was that he purchased Sydney Parkinson's shells for considerably more than they were worth, and these specimens so unhappily acquired must have formed part of the Fothergill collections sold to William Hunter in 1780. (Fox, 1919, pp. 78 and 213.)

Further evidence that the shells were acquired by Hunter is to be found in Martyn's *Universal Conchologist* (p. 12, para. 2), where he remarks that " The cabinet of the late Dr. Hunter, since the addition of that great collection formerly in the possession of Dr. Fothergill, is truly magnificent". The Hunterian Museum was taken over by the University of Glasgow after Hunter's death, and is still administered by the University Court, but recent search among the shell collections in the museum of the Zoological Department of the University (to which the Hunterian zoological material was removed in 1923) has failed to reveal any collection that can be traced to the time of Cook or Fothergill. Numerous corals, figured by John Ellis in 1786 from Fothergill's specimens, are on display and well-known, but no shells appear to have been received with them. It must therefore be presumed, as with the Lister shells at Oxford (Wilkins, 1953, p. 7), that they lost their identity in the course of time, and may have been abandoned for lack of space.

It is difficult to conceive how this could actually happen, for in the *General Account of the Hunterian Museum, Glasgow*, compiled by Captain James Laskey in 1813, no less than ten closely printed pages were devoted to a description of the Conchological Division of the museum, from which it is evident that most of the specimens were contemporary with those in the Banks and Portland collections, and could only have been acquired by Hunter from Fothergill in 1780.

In his introductory remarks, Laskey notes that " Linné has not described one-fourth part of the objects contained here, and to remedy this deficiency we shall have recourse in many instances, to the synonymies of the late Dr. Solander, which will be designated by the letter " S ". From this note and the general wording of his descriptions it is obvious that Laskey made use of an annotated copy of the *Portland Catalogue* when compiling his account, and one item only, describing a *Malleus* (p. 100), in which the wording is almost identical with that on p. 178 of the *Portland Catalogue*, is sufficient to show once again that the Hunterian specimens were contemporary with those in the Banks and Portland collections :

" Malleus, var. White Hammer Oyster, very rare. This specimen was brought home by Captain Cook from the Coral Reef at Endeavour River and is very rare. Twelve guineas have been given for a fine specimen."

Although little authentic material appears to remain from the great collections sold during the late eighteenth and early nineteenth centuries, it may be worth while to record some further details associated with the Cook and Banks period.

The earliest collection of interest seems to be that sold in 1779 by George Humphrey, a prominent eighteenth century dealer in shells and curiosities, who had business premises at 48 Long Acre as early as 1768, moving later to Leicester Square, where he resided until his final retirement in 1823 (Dawson, 1949, p. 46). This enterprising dealer had a finger in every conchological pie of any importance for the best part of half a century, the large amount of South Seas material included in this early sale indicating that he was in touch with the officers and crews of most vessels returning from the early voyages. It is now impossible to trace with any certainty the numerous lots of shells sold in 1779 ; even the catalogue itself is extremely rare, the copy in the library of the British Museum (Natural History), acquired after much patient enquiry, is probably unique (Sherborn, 1905, p. 262).

Principal among the many sale catalogues prepared by Humphrey during his long career was that of the famous collection formed by Margaret Cavendish, Dowager Duchess of Portland (1714?–1785), which contained the choicest specimens of corals, shells, precious stones, and works of art obtainable, and there is no doubt that the pick of the many novelties brought home by Byron, Wallace, Cook and Banks, found their way to the crowded cabinets in her Whitehall mansion, and at the great house at Bulstrode in Buckinghamshire, replete with its many grottoes and aviaries of exotic birds, at which Banks and Solander were frequent visitors (Dewes, p. 241 ; Dobson, p. 117). The sale of the Portland collection, comprising over 4,000 separate lots, opened on the 24th April, 1786, and continued for the next thirty-seven days, prices ranging from a few shillings for odd lots of shells and fossils, to £1,029 for the famous Portland Vase, the *pièce de resistance* of the whole collection.

Although compiled by Humphrey, the numerous non-Linnean names in the *Portland Catalogue* were the work of Solander, who spent a great deal of time on the Duchess's collection, and for this reason the catalogue must be regarded as important in conchological literature, and of particular interest in connexion with the smaller Banks collection.

Solander worked conjointly on the Portland, Banks, and British Museum collections, marking his manuscript descriptions, and even some of his labels, to indicate the presence of the various species in one, two, or all three of these collections ; and as it seldom occurs that specimens are marked for the Banks collection and not for the Portland, it seems that the Duchess had a prior claim to species lacking in her collection.

Items bearing the collector's name appear occasionally in the *Portland Catalogue*, notably Lot 3832 (p. 178), " A very large and fine specimen of the white variety of Ostrea Malleus *L.* brought by *Capt. Cooke* from the *Coral Reef* off *Endeavour River—very rare* " ; and Lot 4039 (p. 190), " A very perfect specimen of Voluta pacifica, *S.* brought by *Capt. Cook*, from the *Reef off Endeavour River*, on the *Coast of New Holland*". A few Portland specimens have come to the British Museum through the Calonne, Tankerville and Broderip collections (Wilkins, 1953, p. 23), but no authentic Cook or Banks shells have yet been found among them.

At the Portland sale in 1786, numerous lots were purchased by an agent acting for the French Minister of State, the Prince of Calonne, but within eleven years these shells, together with the rest of his collection, were sent over to England and offered for sale in 1797. As usual, George Humphrey had the handling of the business, for which he compiled an imposing catalogue, published anonymously, with the title *Museum Calonnianum*, a work which only narrowly missed becoming of scientific importance. Humphrey used a new method in arranging the items in the catalogue, including a number of new genera and species; but as no proper definitions of these were given, his names could hardly be accepted. William Swainson (1840, p. 15 *et seq.*) even went so far as to say that this catalogue, finding its way to France, " served as the main foundation, although unacknowledged, for the subsequent system of Bruguière, if not of Lamarck and Cuvier". The further deliberations of Swainson need not be repeated here, but how far he was mistaken in his enthusiasm for an unrecognized genius may be gathered from the following paragraph of a letter from W. H. Dall to E. A. Smith, dated 10th December 1900, pasted into the British Museum copy of the *Museum Calonnianum* : " In regard to Humphrey, I have it in his own handwriting in one of my copies that the new genera in his catalogue were 'from a manuscript of Mr. Hvas' (Hwass) Danish Consul in Paris who monographed the Cones for the Encyl. Méth." The main interest in the catalogue, however, is the frequent appearance of the initials " M. P.", indicating that items so marked had come from the Portland Museum, and were purchased for the Prince of Calonne in 1786.

Just two years after the Calonne sale, the death ocurred of a well-known bibliophile and collector, the Reverend Mordaunt Cracherode (1730–1799), who bequeathed his valuable collection of books and shells to the British Museum. Cracherode was a man of leisure, discrimination, and ample fortune, so that his collection of shells contained only the finest specimens obtainable, for which he paid considerable sums of money to the redoubtable George Humphrey. From the brief outline of the character of the " mild Cracherode " given by Edwards (1870, p. 421), he was hardly the man to attend public auctions, and there is ample evidence from contemporary sources that Humphrey made considerable profits from specimens, purchased for a few shillings and sold to his more important clients at home and abroad for as many guineas; but, while appreciating the great demand for South Seas material at the time, four guineas for a pair of New Zealand *Trochus* (*Maurea tigris* (Martyn)), one of which was polished, certainly seems exorbitant.

In all fairness to Humphrey, however, it must be admitted that the Cracherode specimens were exceptional for this period, and a group of juvenile *Spondylus americanus* Hermann, the brilliantly tinted Thorny Oyster of Florida, forms one of the choicest specimens in the British Museum collection of *Spondylus* to-day. Several Cracherode shells were found to be new to science, and were described by various authors, notably Dr. W. E. Leach in the *Zoological Miscellany* 1814–1817, in which *Haliotis Cracherodii* perpetuates the name of one of the last eighteenth-century collectors.

In 1806 the great collection of Sir Ashton Lever (1739–1788), known as the *Leverian Museum*, was sold by auction on the premises near Blackfriars where it had been exhibited to the public by James Parkinson (1730–1813), who won the entire collection in a lottery promoted by Lever in 1784. Banks and Cook both presented material to Lever's Museum, which found its way, after the sale, into the Humphrey, Bullock, and Goodall collections. The last named has only recently appeared as a possible source of original Banks material, for while examining a marked copy of the sale catalogue of Bullock's *London Museum* (previously the *Liverpool Museum*), sold by auction in 1819, the name of Dr. Goodall appeared frequently as a purchaser of shells. As it is known from Bullock's own list of donors to his collection (1812, p. vi) that Banks gave him specimens, this seemed a likely field for investigation, particularly as a number of Goodall's shells are still extant in the British Museum collection.

Dr. Joseph Goodall (1760–1840), Headmaster and later Provost of Eton, was an enthusiastic naturalist and well-known to conchologists of the period ; his collections were sold shortly after his death in 1840, many lots being purchased for the Museum, the shells amounting to about 840 specimens, all of which were registered and incorporated in that year. The naming of *Marginella Goodalli* by Sowerby in 1825, and *Chiton Goodalli* by Broderip in 1835 are indications of the high esteem accorded to him by his contemporaries.

The Bullock Catalogue of 1819, which has been fully described elsewhere (Bowdler Sharpe, 1906 and Mullens, 1917), contained a large number of vernacular names, in addition to the Latin names of Linné and Solander, and as at that time there were often five or more vernacular names in current use for the same shell, it is obviously difficult to decide on the modern counterpart with certainty ; but the localities given, many from the Cook voyages, are helpful, and there is no doubt that further search will add more to the few Goodall specimens so far considered contemporary with the early voyages.

This account of some contemporary collections may be suitably concluded with a brief note of a sale which took place early in 1823, composed mainly of the residue of the collections of George Humphrey, who was said by Swainson to be the " chief commercial conchologist of his time". This sale marked his retirement from business and may be regarded, not only as his swan song, but as the end of an era, for it contained the remnants of his considerable stores of early voyage material, and it was probably the last time that the old vernacular names were used in any sale catalogue. The collection was small, comprising only 952 lots, which were sold at moderate prices, ten guineas for an Orange Cowry (*Cypraea aurantia*) being the highest price paid for any single lot.

Solander names were still used in the catalogue, and a certain number were marked " M.C.", being the residue of Humphrey's own purchases at the Calonne sale in 1797, or perhaps those bought back from relatives of earlier clients ; there were numerous New Zealand shells offered, including an Imperial Sun Trochus (*Astraea heliotropium*) from Cloudy Bay, which sold for only fourteen shillings.

The details of this last Humphrey sale were obtained from a priced copy of this rare catalogue, autographed and presented to the Linnean Society of London by Hugh Cuming (1791–1865), who became the foremost shell collector of the nineteenth century.

3. HISTORICAL BACKGROUND FROM THE ARRIVAL OF DR. SOLANDER IN ENGLAND TO HIS DEATH IN 1782

The period covered briefly in this section is one in which collections of natural history specimens increased beyond belief. The three voyages of Captain Cook opened up vast coastlines hitherto known only vaguely as the Terra Australis Incognita, from which plants and animals were brought in almost too great a profusion to be dealt with by the few naturalists capable of the task. One of the most able among these was Dr. Daniel Charles Solander, who accompanied Mr. Joseph Banks on Cook's momentous first voyage round the World (1768–1771). He was born in
33 Norrland, Sweden, in 1736, and received his later education at the University of Uppsala where he took the degree of M.D., continuing his botanical studies under Linné who looked on the young doctor as one of his most promising pupils. So great was Linné's confidence that in 1759 he sent Solander to England with the strongest recommendations to the well-known naturalist John Ellis, who introduced him to many important people of the day.

This kindly attention was the result of a promise made to Linné in a long letter on botanical and zoological matters, dated October 24th, 1758, in which Ellis gave thanks for the gift of the first part of the *Systema*, just received, concluding the letter with the following paragraph : " I hear your pupil Mr. Solander intends to come to England. Pray desire him to study English immediately, and in a month after he comes here he will speak it fluently. I should be very glad to do him any services in my power, as I find you have a great esteem for him " (Smith, 1821, **1**, p. 108).

The recommendations of Ellis soon led to the employment of Solander at the recently opened British Museum, in classifying and cataloguing ; by 1763 he was given the post of assistant, becoming Assistant Keeper in 1765 and Keeper in 1773, a position he retained for the rest of his life. Further proof of Solander's ability was his election to the Royal Society within a comparatively few years of his arrival in this country (7 June, 1764), and it was there that he met the youthful Banks in 1767.

These two young and ardent naturalists : Solander, the elder by a few years and still imbued with the teaching of Linné, Banks, wealthy with his appetite for travel sharpened by his recent voyage to Newfoundland with Phipps, were just in the mood to join the expedition then being prepared to observe the transit of Venus from the island of Otaheite (Tahiti) in 1769. Permission to join the vessel was soon obtained from Banks's boyhood friend, Lord Sandwich, then First Lord of the Admiralty, but the entire expense of the elaborate equipment for collecting, and a staff of artists and servants, was paid for by Banks himself at a cost variously stated to be between five and ten thousand pounds. Proof that he had no reason to regret this large outlay from his private fortune lies in a letter describing the voyage in the " Endeavour," addressed to Count Lauragais, dated 6th December, 1772, quoted by Cameron (1952, App. G., p. 319) in which Banks says : " The number of natural productions discovered in this voyage is incredible ; about one thousand species of plants that have not been described by any botanical author ; five hundred fishes ; as many birds; with insects, sea and land, innumerable." The technical description of all the acquisitions on the voyage was allotted to Solander, who acted as paid assistant to Banks at the generous salary of £400 per annum.

The day-to-day story of this great voyage, said by Campbell to be the prelude to the building of the Empire in the South Seas, has been told at length in the printed *Journals* of Banks (Hooker, 1896) and Cook (Wharton, 1893), from which extracts relating to shells will appear later in this paper; but the failure of either Banks or Solander to publish even meagre descriptions of the completely new genera and species "innumerable" brought back to this country in 1771 needs some explanation.

From the large amount of manuscript available, it is obvious that Solander was industrious, at any rate in his earlier years, noting accurately, and with the new Linnean precision, plants and animals seen for the first time in their living state, doubtless with the best intention to publish the results on returning to England. The very success of the voyage, however, gradually slowed any efforts at publication, for Solander, being of a lively and agreeable nature, was welcomed everywhere, so that delay has usually been attributed to "interruption caused by other avocations, the dissipation of London Society . . . and the indolence induced by a sedentary and luxurious life" (Smith, 1821, **2**, p. 2). Correspondence was likewise neglected, and many were the complaints of broken promises from his friend and master, Linné, in letters to John Ellis (October to December 1771) in which the ageing savant expressed his concern at the apparent neglect of the unique material brought back in the "Endeavour"; and it was not until early in January 1772 that Ellis, after repeated invitations, at last persuaded Solander to call and see him about the corals they were to describe together. During this visit Ellis confronted Solander with all Linné's letters imploring samples of the new plants discovered in Terra Australis, and at last exacted a promise that he would attend to the matter without delay (Smith, 1821, **1**, p. 276).

Solander's dilatoriness was partly due to the preparations he and Banks were making to take part in Cook's voyage in the "Resolution" to the South Pole, a scheme that fell through, partly because of the misdirected enthusiasm of Banks in overloading the vessel with collecting gear, and partly owing to the restrictive practices of Sir Hugh Palliser, then Comptroller of the Admiralty (Hooker, 1896, p. xxvii). Banks had already engaged a staff to accompany him on the voyage, and in order that they should not be left unemployed and all the expensive equipment wasted, he and Solander decided on a trip to Iceland which duly took place during the summer of 1772.

This was the last time these now inseparable companions left England on any expedition, although another South Seas voyage was never far from their minds. Solander was fully engaged on his work at the Museum; acting as secretary and librarian to Banks (in whose house he had been "domesticated" since the return of the "Endeavour"), and of course attending the numerous scientific and social functions at which he and Banks were seen in each other's company almost as frequently as their literary contemporaries and acquaintances, Boswell and Johnson. Banks himself became involved in many undertakings, the morning receptions in the library of his handsome house in Soho Square eventually becoming the recognized meeting place for informal discussion between visiting scientists of all nationalities. The mass of personal correspondence, still extant in various parts of the world, contains abundant evidence of the far-reaching influence of this imposing figure of the eighteenth century, and it is not altogether surprising that the endless memoranda and letters that flowed from Soho Square on such diverse subjects as the colonization of Australia, the running of Kew Gardens, and the affairs of the Royal Mint, left little time for the publication of scientific work, so that much of the detailed and descriptive work on Banks's library and collections was left particularly to Solander and, after his death, to the patient and persevering Jonas Dryander (1748–1810), known affectionately to the quaint household at Soho Square as " Old Dry". When it is realized that in addition to his other commitments Banks had a large estate at Revesby in Lincolnshire, in the efficient running of which he was deeply interested, it is remarkable that he and his helpers produced as much work as they did.

Solander published nothing independently but was largely responsible for the descriptions in Brander's *Fossilia Hantoniensia* published in 1766, and those in John Ellis's *Natural History of Zoophytes* published posthumously by his daughter, Martha Watt, in 1786, and dedicated by her to Sir Joseph Banks.

4. THE SOLANDER MANUSCRIPTS AND THEIR USE BY SUBSEQUENT AUTHORS

Frequent reference has already been made to the Solander manuscripts, left incomplete in 1782, and it now becomes necessary to describe these in more detail, particularly the mollusca volumes, which are intimately connected with the Banks shell collection.

Iredale (1916, p. 86) neatly describes the manuscripts as follows : " In the British Museum (Natural History) is kept a cabinet containing Solander's manuscripts, received with Sir Joseph Banks's collections, and from a glance over these it may be suggested that he hoped to publish a Survey of Natural History, comparable to Linné's *Systema Naturae*, but on an even more extensive and accurate scale than Gmelin's edition as well as more replete with personal knowledge. A very large quantity of manuscript deals with mollusca, which appear to have been a favourite study of his since he collected them on his voyages." The manuscripts consist of hundreds of slips, six inches wide by four inches deep, now bound in twenty-seven volumes, of which fourteen deal with the mollusca. These slips, arranged in accordance with the Twelfth Edition of the *Systema Naturae* were originally stored loose in small Solander boxes, to facilitate the frequent additions and alterations made over a period of years ; twenty-four similar volumes of botanical manuscripts which formed the basis of Aiton's *Hortus Kewensis*, are also in existence.

As already stated these manuscripts contained many new names of plants and animals, for apart from the specimens collected during Cook's voyages and other sources, Solander re-described much of the earlier Museum material, mainly from the Sloane collection, using the binominal nomenclature of Linné, so that a number of the manuscript volumes, particularly of insects and mollusca, are literally catalogues of the British Museum collections shortly after it was opened in 1759.

The mollusca slips are generally marked with initials, indicating in which collection examples of the species described were to be found, usually in the following order: M.C.P. (M. Cavendish Portland); J.B. (Joseph Banks), and M.B. (British Museum), sometimes all three appearing on the same slip. The localities given for species collected personally by Banks and Solander are often followed by the additional initials J.B. or D.S.

The publication of Solander's work would have considerably altered the molluscan nomenclature we know to-day. For instance, the well-known New Zealand lamellibranch, *Chione stutchburii*, named and figured by Wood in 1828, would have received Solander's specific name *antiquata*,* fully described by him from specimens now extant in the Banks collection; similarly the North Australian and Queensland *Batissa triquetra*, described by Deshayes from Australian specimens in the Cuming collection in 1854, would be the *erosa* of Solander, labelled Nova Cambria (fig. 10). While realizing the futility of reflecting on the might-have-been, it is still a matter for regret that Solander's work remained unpublished in Sir Joseph Banks's library, for as already noted, it would have been more extensive and accurate than the Thirteenth Edition of the *Systema Naturae*, eventually published by J. F. Gmelin (1788 to 1793), a work that contained sufficient errors and repetitions to indicate that the author lacked Solander's practical experience and gift for concise description.

All the molluscan slips are in Solander's writing, and were evidently written at different periods, some neatly, others hurriedly, with a fair number of alterations and additions. The slips are numbered consecutively, as in the Twelfth Edition of the *Systema*, one to each species, varieties being noted overleaf. Descriptions of Solander's new species were numbered according to the approximate position they would occupy in the completed revision; thus the description of a new species of *Venus* is marked 115–116, indicating that it was to be placed between the Linnean *Venus dysera* (115) and *Venus verrucosa* (116), the latter presumably becoming 117 in the final renumbering of the slips. Incidentally, this particular slip was first marked 93–94, the numbers given to these two species in the Tenth Edition of 1758, from which it would appear that Solander's revision must have been started before the publication of the Twelfth Edition of the *Systema Naturae* in 1766.

References are given on the slips to Linné's *Systema* and *Mantissa*, and to figures and descriptions in the works of Lister, Petiver, Sloane, Kircher, Klein, Martini and other contemporary authors on which some of Solander's names were based. In some volumes pencilled observations made during the voyage of the "Endeavour," sometimes on the backs of old lists of Tahitian words and phrases, have been inserted here and there. A slip in one of the volumes of *Pisces* is of particular interest, for it records descriptions of certain fish, dictated to Solander by Omai, the native of Tahiti brought to England by Captain Furneaux in the "Adventure," sister ship to Cook's "Resolution," in 1774.

Before concluding this section with brief references to the authors who have used or referred to the Solander manuscripts, it may be of interest to list the contents of the "mollusca" volumes, previously unrecorded. These are numbered 1 to 14, and were bound in the same order as in the original Solander boxes.

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* *Nomen nudum*, Portland Catalogue, Lots 1562 and 2253.

Vol. 1.—Doris
,, 2.—Chiton
  Balanus
  Lepas
  Pholas
  Mya
  Solen
,, 3.—Tellina
  Cardium
  Mactra
  Donax
,, 4.—Venus
Vol. 5.—Spondylus
  Chama
  Arca
,, 6.—Ostrea
Vol. 7.—Anomia
  Mytilus
  Pinna
  Argonauta
  Nautilus
,, 8.—Conus
,, 9.—Cypraea and Bulla
,, 10.—Voluta
Vol. 11.—Voluta
,, 12.—Buccinum
,, 13.—Buccinum
  Strombus
  Murex
  Trochus
Vol. 14.—Turbo
  Helix
  Nerita
  Patella
  Dentalium
  Haliotis
  Serpula
  Teredo

Most of the genera in volume 14 have only a title slip giving the general characters of the genus with one or two species. From volume 10 to 13, specimens are marked only from the Portland collection, no further reference being made to the Banks or British Museum collections. The genus *Murex* was never completed, and the only species noted are those taken from Brander's *Fossilia Hantoniensia*, a fact that accounts for the considerable number of unnamed *Murex* in the seventh drawer of the Banks collection noted above (p. 73).

The Solander manuscripts appear to have been always available to workers, first in the library of Sir Joseph Banks, and later in the British Museum, so that a number of authors have used and referred to them from time to time, commencing with George Humphrey in 1785–86, who used them extensively when compiling the *Portland Catalogue*, and again in 1797, when he compiled the *Museum Calonneanum*, a collection that contained much of the Portland material named by Solander. In the preface to the Calonne catalogue (p.v.) Humphrey states that "The Linnean name of each species, where it could be ascertained, or was not too indelicate, is annexed . . . and those of the late Dr. Solander, from an unpublished MS of his, descriptive of the shells in the Portland Cabinet".

Richard Pulteney frequently referred to Solander's names and to specimens in the Portland Cabinet when compiling his *Catalogue of the Shells of Dorset* in 1799. Pulteney was in constant touch with the Duchess for many years, for she relied much on his judgment regarding British species, of which she had many unique specimens from the Weymouth and Portland districts of Dorsetshire. *Gastrochaena dubia*, the *Mya dubius* of Pennant, described by him in 1777 (p. 69) was said by Pulteney to have been "first distinguished by the late dowager duchess of Portland at Waymouth".

In 1804 Dr. William Maton and the Rev. Thomas Rackett together published a

Descriptive Catalogue of the British Testacea in Volume VIII of the Linnean Transactions. This was a retrogressive work, mainly because of too strict an adherence to the Linnean method. Accordingly, on page 22 of their paper, the authors state that " Differently from the method pursued by some modern authors, who have followed Dr. Solander's original suggestion, we prefer retaining the Linnean genus *Lepas* undivided ". Nor did they agree with the separation of the pectinated species from the Linnean genus *Ostrea*, to form the separate and clearly defined genus *Pecten*. This obstinate attitude to progress is all the more remarkable since Maton and Rackett's paper was not read at the Linnean Society until some months after the publication of Montagu's *Testacea Britannica* in September 1803, which contained several logical improvements on the older classifications, so that their paper was, in some respects, out of date even before it appeared in print.

In 1808 Montagu followed his previous work with a *Supplement*, with additional plates, and a reprint of Boys and Walker's *Minute and Rare Shells of Sandwich*, originally published in 1784, dedicated to the Duchess of Portland and Sir Joseph Banks. This *Supplement* becomes of added interest to the period under review, when it is learnt from the Introduction (p. ii) that apart from possessing the complete cabinet of William Boys's *Testacea minuta rariora*, which contained specimens labelled by Solander, Montagu also had the opportunity of examining an additional collection, also labelled by Solander, lent to him by Captain Laskey, who had purchased it at the Portland sale in 1786 for the modest sum of one guinea. (Lot 3088. A curious collection of minute Shells from the English Coast, *including most of the new species figured by Walker in his Account of Minute Shells discovered at Sandwich, with a MSS. catalogue*). Montagu was thus able to compare many of Solander's names printed in the *Portland Catalogue* with all the original material.

The next work directly associated with the Solander manuscripts to be noted is *A Descriptive Catalogue of Recent Shells*, compiled by L. W. Dillwyn in 1817 and " arranged according to the Linnean method, with particular attention to the Synonymy ". This work, dedicated to Banks, is stated by the author to be " an attempt to elucidate the species of shells described in Gmelin's edition of the *Systema Naturae*, and to pave the way for a better arrangement " ; but how far Dillwyn succeeded in his object can best be judged from the critical notes on conchological writers contained in Turton's *Conchological Dictionary* (1819, pp. xii–xv), in which he speaks severely of Dillwyn's work at some length. He says *inter alia* that it offered nothing more than a collation of different authorities, and that " Of the celebrated manuscripts left by Dr. Solander, we learn little more than what we have long known from the Portland and Calonnian catalogues ". At this distance of time, however, Dillwyn's two volumes are of value, not only for the very full synonymies, but as the medium which validated some of Solander's names.

It is difficult to understand why Dillwyn did not make use of the Banks collection when compiling his extensive catalogue ; had he done so, many errors in identifying Solander's species would have been avoided. He had the full use of Banks's library, without which " no writer on Natural History can hope to attain any tolerable degree of perfection " (Advertisement, p. vi) ; and it is strange that he did not realize the significance of the frequently recurring initials "J.B." throughout the manuscripts he examined so closely. Enquiries into the meaning of these initials would have had little result at this date (*c.* 1817), for the erudite Dryander was long since dead, and one feels that Banks himself would remember little of the work that was so personal to Solander. But the collection itself (at that time already in the Museum of the Linnean Society) could surely have been examined by a sufficiently tenacious Fellow, when the connexion between initials, manuscripts and collection would have become as obvious as it is to-day.

Dillwyn's only other conchological work was the important English *Index* to Martin Lister's *Historia Conchyliorum* (1685–97), published at Oxford in 1823, which was a vast improvement on the inadequate index provided by William Huddesford, in his 1777 edition of Lister's great work. In his *Occasional Remarks* Dillwyn again quotes the Solander manuscripts, taking the opportunity to correct several errors in his own *Descriptive Catalogue* of 1817, and on page 16 of the Lister *Index* he casually refers to a specimen he bought from Mr. Humphrey, " whose shells are often sold under Solander's names "—a chance remark that explains the origin of the many Solander names used by Hwass, Bruguière and other continental authors, apart from those culled direct from the *Portland Catalogue.*

Dillwyn's apparent indifference leaves William Swainson as the only author so far known to have actually used the Banks collection, during its sojourn of nearly half a century in the Museum of the Linnean Society, when working on the first series of his *Zoological Illustrations*, completed in 1823. In this same year, Edward Donovan, a more elderly, but equally prolific compiler, started to publish the first of his five volumes of *The Naturalist's Repository,* in the conchological portions of which he referred frequently to the Solander manuscripts, making it again clear that they have always been available to students. When describing a variety of *Voluta scapha* Gmelin, in the text to plate iv, Donovan states that " The late Dr. Solander, as it appears from his manuscripts preserved in the library of the late worthy President of the Royal Society, Sir Joseph Banks, Bart. had designated this kind of Voluta by the name of Nobilis . . . . It is however certain, that it is no other than a variety of Voluta Scapha of the Linnean school. . . . As a variety we admit this shell to be distinct and well defined, and it is under this persuasion the term Nobilis, assigned by Dr. Solander, is subjoined to the specific name Voluta Scapha." Further on, in the text to plate xxxiv, referring to *Terebratula sanguinea,* he notes that " This is one among the number of those very choice accessions to conchological knowledge of the last century, that was derived from the scientific labours of our first circumnavigators in the Southern Ocean ; it occurred to them upon the coast of New Zealand . . . so far plentifully that after the Banksian cabinet was supplied there were several specimens to spare for distribution among the friends of Sir Joseph Banks, Dr. Solander, and Captain Cook. From this little store the species passed in the first instance into several collections, and among others into that of the late Duchess of Portland, Dr. Chauncey, Mr. Cracherode, Mr. G. Humphrey and some others." Donovan seemed rather hurt with Leach, who described this species as *Terebratula sanguinea* in 1814 (vol. 1, p. 14.) without due acknowledgment, and took some pains to show that the name originated with Solander, where it stands in his manuscript as *Anomia sanguinea.*

The description of this species in Solander's manuscript is followed by the name of Forster, so it appears that specimens were brought back from Cook's second voyage in 1775, and one of these, the Cracherode shell figured by Leach, is still extant in the British Museum collection of Brachiopods.

The manuscripts were consulted again in 1825 by W. J. Broderip, when G. B. Sowerby was compiling the sale catalogue of the famous Tankerville collection, which contained a number of specimens from the earlier Portland and Calonne sales, and it was for item No. 2150 that the following descriptions were printed in the Appendix to the Tankerville catalogue (pp. xxix–xxx).

2150. ***Voluta Aulica,*** Solander

Observations. There can be no reason to doubt this being the identical specimen which was described by Dr. Solander from the Portland collection. As any information relating to the history of so beautiful and rare a shell may be interesting to our readers, we copy Dr. Solander's description, which has been communicated to us by W. J. Broderip, Esq., from the MS. in the late Sir Joseph Banks's library, together with the notices relating to it from the catalogue of the Calonne collection.

I. *From Dr. Solander's MS.*

Spira apice mammillari

Aulica. *Voluta emarginata, oblonga, inermis, albo luteoque nebulosa, spirâ conicâ ; anfractibus obliquè planis : mamillâ lâevi ; columella quadruplicata.* Habitat in Oceano I. M.C.P.

II. *From the Catalogue of the Portland Collection*

4021. A very fine specimen of Voluta Aulica, S., a beautiful red clouded species of the Wild Music kind, its country unknown, unique.

III. *From the Catalogue of the Calonne Collection*

273. ***Aulica****—le Courtisan ou le Nuage rouge*—Courtier or red clouded—*Voluta aulica,* Soland. This beautiful shell is unique. Its country is unknown, but presumed to be from some newly discovered island in the South Seas. M.P. 4021.

This historic type specimen was purchased at the Tankerville sale by W. J. Broderip, and came to the British Museum with his collection, purchased in 1837. It was first figured in the *Tankerville Catalogue* in 1825, and later by Wood (1828), Sowerby (1847), and Reeve (1849).

No further reference to the Solander manuscripts appears to have been made by authors until 1855, when Sylvanus Hanley at last published the results of his work on the Linnean shell collection, in the introduction to which (pp. 7–8) he quotes the three interleaved copies of the *Systema Naturae* in the library of the Linnean Society, used by him in elucidating the " more ambiguous " species, the third of which was " the one possessed (ed. 12) by the ill-fated son of Linnaeus, which is identical, or nearly so, with the manuscript of Solander, the esteemed conchological pupil of the great master ". A recent examination of this third copy (unpublished), certainly indicates that the younger Linné added several of Solander's names, particularly to the genus *Venus* which was increased by at least twenty species in the interleaved copy ; the additional names include *Venus turgida, arguta, rubescens* and *rigida,* all Solander names to be found in the manuscripts, the actual specimens in the Banks or Portland collections.

It seems fairly certain from the above that Solander may have shown the specimens and descriptions to the younger Linné while he was visiting England during 1781 and 1782, spending much of his time studying in Banks's house. He was among the first to go for extra medical aid when Solander had his fatal seizure on the morning of 16th May, 1782 (Hooker, 1896, p. xlii).

Hanley again mentions the manuscripts in the list of references to his revised edition of Wood's *Index Testaceologicus*, published in 1856, noting on p. xix that they were " quoted chiefly by Dillwyn, but also evidently studied by Hwass and Bruguière. Although not printed, several copies have been taken ". The reference to Dillwyn is correct, but no evidence in support of the rest of his statement has been forthcoming, unless the *Portland Catalogue* is one of the " copies " referred to ; for a number of Solander names were certainly used without acknowledgment by Hwass and Bruguière, notably *Conus augur, nocturnus, quercinus* and *sulcatus* (see p. 85 above).

Hanley uses many of the Solander names taken up by Dillwyn in the text of his revised edition of Wood's *Index,* but few references were made to them in his previous work on the Linnean shells, and it seems odd that he did not make more use of the actual manuscripts of the former pupil of Linné when facing the many problems that arose. The Banks shell collection appears to have been unknown to him, although at that time (*c.* 1850) it must have been housed in the same building as the collection on which he was working. Swainson, as already stated, used it thirty years before, but judging by the remarks of Gage (1938, p. 124), the " heterogenous mass of material " stored in the rooms of the Linnean Society was not available for study. Had Hanley been able to locate and examine the Banks collection, then probably complete, it would have simplified his self-appointed task, for it contained specimens contributed by some of the same collectors that supplied the Linnean cabinet.

Since 1856, notes and lists of Solander's names from the *Portland Catalogue* have been published, notably by Iredale (1916), and by Dall (1921), in which it was proposed that certain names could be accepted if originally accompanied by the citation of figures in the literature, so that a few specimens in the Banks collection, described in manuscript by Solander, and later published in the *Portland Catalogue* with reference to a figure, may be regarded as type specimens.

For example, the *Venus nimbosa S.* of the *Portland Catalogue* (Lot 3761, p. 175) from Florida, referred to the figure of Favanne (tab. 49, fig. 1, I, 1780), is part of the type set marked by Solander with the locator initials M.C.P., J.B., and M.B. The two Banks specimens (fig. 16 and 16 *a, b*) are therefore original syntypes, the Lectotype designated on p. 110 superseding the Neotype designated by Clench (1942, p. 5)[1] who follows Dall (1902, p. 351) in accepting the Solander name in preference to the *Venus gigantea* Gmelin, 1791. It should be noted, however, that for Solander's *Venus nimbosa*, there was no reference to a figure in his original manuscript description (reproduced in fig. 17), thus confirming that this and other references were added by the anonymous compiler of the *Portland Catalogue*, in accordance with a statement printed at the foot of the List of References (pp. v–vi) to the effect that " Where the Name has no reference, it was given by the Compiler of this Catalogue ". As it is known on the published authority of Dillwyn (1817, p. 117 and 1823, p. 5) that the compiler was, in fact, George Humphrey, the latter may be regarded as the first publisher of the names used therein, whether Solander's or his own.

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[1] Provisions for replacing Neotypes with recently recovered type material have lately been proposed in the *Copenhagen Decisions on Zoological Nomenclature*, 1953, Part 2, p. 31, para. 40.

This view has already been accepted by some recent authors, notably Rehder (in Rogers, 1951), who prints a number of Portland names, unreservedly attributed to Humphrey, in his *List of Modern Names* in the Second edition of *The Shell Book* (pp. 487–503), where, needless to say, *Macrocallista nimbosa* [Humphrey] replaces *Callista gigantea* (Gmelin) of the first edition.

The latest references to the Solander period are contained in an historical review of the Linnean molluscs (Dodge, 1952 and 1953), to which further reference will be made below.

5. CONTRIBUTORS TO THE COLLECTION

Unlike the shell collection of Sir Hans Sloane (Wilkins, 1953*b*), there was no separate catalogue of the Banks collection, all the available information being recorded on the labels or in the Solander manuscripts, which were intended to include descriptions of all the species of shells then known, irrespective of ownership ; but as already shown above, the three main collections from which they were recorded are duly noted. Sometimes, the name of the actual collector or donor was also included, but not in any way so consistently as in the Sloane catalogues. Many of the specimens were collected by Banks and Solander themselves, so that the few additional contributors can all be mentioned briefly below.

Margaret Cavendish Bentinck, Dowager Duchess of Portland (1714?–1785), née Harley ; married the Second Duke (1708–1762) in 1734. For many years she was the leading patroness of natural history in England, and particularly devoted to conchology. Her exotic shells and corals were worked on by Solander and Ellis, and the British shells by Pennant and Pulteney. Sir Hans Sloane (in his later years), Wallace, Cook, Banks and many other early voyagers contributed to the collection sold in 1786, the year following her death. The few British shells in the Banks collection were evidently given to him by the Duchess.

Admiral Sir Edward Hughes (1720–1794). Saw service in the East Indies from 1773 to 1777, and again from 1778 to 1783 ; co-operated in the capture of Negapatam from the Dutch during 1781, and Trincomali in the following year ; made Admiral of the Blue in 1793.

Commodore The Hon. John Byron (1723–1786). Navigator ; grandfather of the poet Byron ; commanded the *Dolphin* and *Tamar* during an abortive attempt to find a strait between Hudson's Bay and the South Sea (1764–66) ; became Governor of Newfoundland (1769) and Rear Admiral (1775). Commanded the West Indies fleet 1778–9 ; worsted off Granada (1779).

Johann Gerhard Koenig (1728–1785). Danish medical missionary in Tranquebar ; former pupil of Linné ; kept detailed lists of plants, animals and minerals observed during his voyages, eventually bequeathed them to Banks (Banks MSS 37–55). Koenig also sent numerous East Indian plants to Banks in 1776, together with some shells, still extant and bearing his name on the labels.

Sir William Hamilton (1730–1803). Diplomat and archaeologist ; ambassador at the Court of Naples for many years during which he published descriptions of volcanoes and earthquakes ; purchased the famous Portland Vase from Byres, the architect ; married Emma Hart in 1791 ; entertained Lord Nelson at Naples in 1798. Sent shells to Banks from the Bay of Naples.

Captain Tobias Furneaux (1735–1781). Circumnavigator ; second lieutenant of the " Dolphin " which sailed with Wall~~ace~~is 1766–68 ; commanded the " Adventure " on Cook's second voyage 1772–1775 ; visited Tasmania during separation from the " Resolution," returning to England in 1774 with Omai, the first South Sea islander to be seen in this country. Brought shells to Banks from the Pacific.

Captain The Hon. Constantine Phipps, Second Baron Mulgrave (1744–1792). Oxford friend of Banks, who accompanied him on a voyage to Labrador and Newfoundland in H.M.S. " Niger," April to November, 1766 ; commanded the " Racehorse " on the Polar Expedition of 1773, in which vessel Horatio Nelson served as midshipman. Appointed a Lord of the Admiralty 1777 ; distinguished himself off Ushant in 1778 while in command of the " Courageux."

Henry Smeathman (fl. 1750–1781). Botanist and entomologist, engaged by Banks, Fothergill and Drury in 1771 to collect specimens from the west coast of Africa ; sent home many new species of plants, insects and shells from Sierra Leone ; wrote the first detailed account of the Termites of Guinea ; started a scheme for a settlement of Poor Blacks near Sierra Leone, but died before this was accomplished. The Passion Flower *Smeathmannia* was named after him (see also Fox, 1919, p. 213).

Johann Georg Forster (1754–1794). Naturalist and artist, son of Reinhold Forster, with whom he came to England in 1766 ; assisted his father as naturalist on Cook's second voyage (1772–5); elected F.R.S. in 1775 for his work on the South Seas flora ; prematurely published an account of the voyage in 1777 in opposition to the official one by Cook which appeared a few weeks after. Generously paid by Banks, but caused much unpleasantness by further demands for money. On his return to Germany, J. G. Forster was appointed professor of natural history at Wilna, and later librarian at Mainz.

Note :—The names of the occasional contributors listed above do not necessarily appear in the following descriptive catalogue, for the specimens added by them to the Banks collection were in some instances included among the missing shells presumed to have been sold in 1863.

6. DESCRIPTIVE CATALOGUE OF THE BANKS SHELL COLLECTION

Introduction

In his recent biography of Banks, Dr. H. C. Cameron concludes his acknowledgments with a remark which is singularly apposite to the material described in the following catalogue, when he says that " The trail of Captain Cook has been explored so thoroughly and by so many, and the trail of Banks is so faint and overgrown, that in either case the discovery of anything that has been overlooked or forgotten brings with it, perhaps, a disproportionate degree of satisfaction ". This feeling was certainly experienced during the examination of the forgotten Banks collection, but it eventually gave place to the conviction that any satisfaction felt in recording so many specimens of shells, collected by two of the principals in the voyage of the " Endeavour," will not be out of proportion to the amount of interest aroused, not only among conchologists, but also among students of the earlier voyages.

Some doubt has been felt about the best method to be employed in compiling this catalogue, for it is almost certain that the surviving portion of the collection stands as it was left by Dr. Solander in 1782, and it would have been appropriate for the cataloguing to proceed drawer by drawer in the original order, preserving his numbering of the specimens on the labels, with the addition of the names by which they are known to-day. This method, however, while serving to illustrate the numerous improvements made by Lamarck and later authors to the polyglot genera of Linné, would be rather too cumbersome, and it seemed more useful to group the specimens geographically. Current names of the genera and species found in the collection, and known to occur in the given localities, will be placed on the left of the pages, in bold type, with selected details from the Solander labels and manuscripts on the right-hand side, three dashes indicating that the label is blank or missing.

Sixty-one manuscript names occur on the labels in the Banks collection ; thirty-three of these were printed by Dillwyn (1817), either as authentic species or as synonyms ; fourteen names unrecognized by him are among the many *nomina nuda* printed in the *Portland Catalogue* (1786), and an equal number remain in manuscript. As it is now known to which species most of these *nomina nuda* and manuscript names apply, the danger of needlessly adding to already overcrowded synonymies is fully realized, and therefore, with very few exceptions, only the names used by Dillwyn are included in the following lists, three asterisks indicating that the original Solander name has been purposely omitted.

The localities on the original labels are frequently abbreviated, and must be taken in the broadest sense, for it will be remembered that New Holland, the name given by the Dutch to the North West coast of Australia, was in general use in Solander's day and even much later ; the East coast, first charted by Cook in 1770, was for a time known as New Wales, the Latinized Nova Cambria of the Solander labels and manuscripts. According to Wharton (1893, p. x), the name New South Wales was not bestowed without a great deal of consideration ; at one stage New Wales was the name fixed upon, and in one of the three copies of Cook's *Journal*, it is so called throughout. Similarly New South Wales does not occur on any of Solander's labels, or in his manuscripts; Nova Cambria, or the abbreviation N.C. being used throughout. Accordingly, the localities New Holland (N.H.), and Nova Cambria (N.C.) are used somewhat indiscriminately, all referring to the progress of the "Endeavour" along the east coast of Australia, from just below the present Cape Howe to Possession Island where Cook " once more hoisted English colours, and in the name of His Majesty King George the Third, took possession of the whole Eastern coast . . . by the name of New Wales, together with all the Bays, Harbours, Rivers, and Islands situated upon the said coast " (*Journal*, 22nd August, 1770).

Cook is known to have been reticent about his names for newly discovered places, and consequently Solander may have jotted down the " N.H. " on his rough labels prior to Cook's announcement quoted above. In his own *Journal*, when summing-up the results of the exploration of the East coast, Banks heads his chapter " Some account of that part of New Holland now called New South Wales ", and this seems to confirm that the name was finally agreed upon shortly before leaving Australia on 26th August, 1770.

The Banks shell collection falls naturally into two groups, and will therefore be catalogued in two parts: (1) specimens collected from classic localities visited by the "Endeavour" from 1768 to 1771, and (2) specimens given to Banks from various localities up to the year 1782. All the shells have been identified, including those numbered but unnamed by Solander, and these will all appear in the catalogue.

Nomenclature used throughout is based mainly on Thiele's *Handbuch* (1931–35); the papers of Iredale (1935 and 1939*a*) and Schilder & Schilder (1938) have been consulted for records of *Cypraeidae*, and Allen's *Australian Shells* (1950) for the general distribution of Australian species. The author alone is responsible for the identifications.

DESCRIPTIVE CATALOGUE PART I

Shells from localities visited by the "Endeavour," 1768–1771

RIO DE JANEIRO

Cook and his party arrived here on Monday, 14th November, 1768 in " fine, pleasant weather ", but great was the disappointment to Banks and Solander when it was learned that only the Captain and a few men would be allowed ashore to purchase supplies, and then only under strict surveillance, for doubt was expressed by the Portuguese Viceroy as to the true character of the " Endeavour."

Banks however was not to be deterred by this veto, and managed to get ashore before dawn one morning and stayed until " dark night ", having noted many of the plants and animals of a country thought by him to have been unvisited by even "tolerably curious " persons since the visit of Marcgrav and Piso in 1640 (*Journal*, p. 28).

It is unlikely that Banks stayed long in sight on the beach during this surreptitious visit ashore, so the few Brazilian shells in the collection, some labelled " Rio Janeiro," were probably taken from the island of Raza, beyond the Fort of Santa Cruz, where the best part of a day was spent in collecting, unmolested by the Viceroy's men.

Cerithium atratum (Born)	— — —
Cypraea cinerea Gmelin. Juveniles	*Cypraea bifasciata* Sol. MSS.
Cyphoma gibbosa (Linné)	*Bulla gibbosa* L.
Leucozonia brasiliana d'Orbigny.	Rio Janeiro.
Cymatium parthenopeus (von Salis)	,, ,,
Aulacomya ovalis (Lamarck)	,, ,,
Modiolus falcatus (d'Orbigny)	,, ,,
Modiolus guanensis (d'Orbigny)	,, ,,
Pinctada vulgaris (Schumacher)	,, ,,
Pteria argentea (Reeve)	— — —
Macrocallista maculata (Linné)	*Venus maculata* L. Rio Janeiro, Brasil. J. B. vars. *a*, *b*, *c*, *d*.
Tivela mactroides (Born)	— — —
Tivela trigonella (Lamarck)	*Venus*. * * * Brasil.
Dosinia concentrica (Born)	*Venus dilatata* Sol. MSS. Rio Janeiro. J.B., D.S.
Ventricola rigida (Dillwyn) Lectotype (plate 19, figs. 23 and 24)	*Venus rigida* Sol. MSS. Rio de Janeiro.

Dillwyn, Descriptive Catalogue of Shells (*Venus*), pp. 164–5, 1817.

	Length	Height	Thickness.
Dimensions of Lectotype	53 mm.	49 mm.	38 mm.

Type locality: Rio de Janeiro, Brazil.

Anomalocardia flexuosa (Linné) (fig. 20, *a*, *b*, *c*)	*Venus Phryne* L. Rio Janeiro.
Atactodea striata (Gmelin)	Rio Janeiro.

Apart from the specimen designated as the Lectotype of *V. rigida* (Dillwyn), other Rio de Janeiro shells of particular interest are the four specimens of *Anomalocardia*, first identified by Solander as *Venus flexuosa*, but afterwards altered on the label and in the manuscript description to *Venus Phryne*, a Linnean species decided by Hanley (1855, p. 171) and more recently by Dodge (1952, p. 102), to be inadequately described by Linné and therefore a doubtful species. The combined evidence furnished by actual named specimens, further correlated with the critical notes of Dodge and Hanley, suggests that the Linnean specimen selected and figured by Hanley (pl. iv, f. 1.) as the *Venus flexuosa* Linné, may be none other than the type of *Venus Phryne*.

There is little doubt from all the available data that both Linné and Solander failed at first to realize the extreme variability of the shells they were describing, for an adequate series of *A. flexuosa* may vary in colour from pale yellowish-white to olive or chestnut brown, with or without the pronounced anterior beak of the shell seen in some examples, but the violet veining of the posterior depression, mentioned by Linné in his original description of *Venus Phryne*, is usually present. It was apparently only some time after his first description of *Venus flexuosa* (based on an immature or intermediate stage, and marked M.B. in his manuscript), that Solander appreciated the affinity between his *V. flexuosa* and Linné's *V. Phryne*, altered his second description accordingly, and added three colour varieties, two in the Banks collection (Fig. 20, *a*, *b*,) and one in the Portland.

On the reverse of his slip describing these varieties Solander noted that " the colour is either brown or yellowish, and the beak in different shells is more or less produced ", a note that does more than anything else to show that the variation in shape and colour of the shell labelled *Venus Phryne* by Solander is identical with the range noted for the *Anomalocardia flexuosa* of recent authors. In conclusion, it should be noted that the specimen pronounced by Hanley to be the type of *Venus flexuosa*, was not actually marked with that name in the Linnean collection, for he says (1855, p. 67) : " I can find but a single shell in the whole Linnean collection that possesses the required characteristics of this species," an admission overlooked by Dodge (1952, p. 97), who refers to the " marked specimen found in the collection " ; furthermore, it seems unlikely that Linné ever possessed a specimen of Solander's *V. flexuosa*, for the original description was supplied to him by Solander and is duly acknowledged in the text of the Twelfth Edition of the *Systema Naturae* (1131, 121), where the species was first described, with augmented diagnosis and with the locality " in Indiis ", instead of the more explicit " Oceano Atlantico prope Insulam Adscensionis " of Solander's earlier manuscript, marked " M.B." and probably described from a specimen in the series of shells from the Island of Ascension, known to have been in the Sloane collection.

Tierra del Fuego

On the 20th January, 1769, Banks and his party explored the beaches of this desolate place, and the results were recorded in his *Journal* as follows : "This morning was very fine, so much so that we landed without difficulty at the bottom of the bay and spent our time very much to our satisfaction in collecting shells and plants. Of the former we found some very scarce and fine, particularly limpets ; of several species of these we observed (as well as the shortness of our time would permit) that the limpet with a longish hole at the top of his shell is inhabited by an animal very different from that which has no hole. Here were also some fine whelks, one particularly with a long tooth, and an infinite variety of *Lepades*, *Sertulariae*, *Onisci*, etc., in much greater variety than I have anywhere seen. But the shortness of our time would not allow us to examine them, so we were obliged to content ourselves with taking specimens of as many of them as we could in so short a time scrape together ". Later in the same day Banks remarks that they saw few fish fit to eat, but " shell-fish, however, are in the greatest abundance, limpets, mussels, clams, etc., but none of them delicate, yet such as they were we did not despise them " (*Journal*, pp. 55 and 57).

Banks was quite correct in his observation of the animal inhabiting the " limpet with a longish hole at the top of his shell " (*Fissurellida picta* Lamarck), for the tufted mantle margins and apical opening of the Fissurellidae are far more striking than the simpler animals and imperforate shells of the Patellidae. The whelk with the long tooth was undoubtedly *Acanthina calcar* (Martyn)—the *Buccinum monodon* of Solander's manuscript and the *Portland Catalogue* (Lots 372 and 3093, both from Tierra del Fuego)—in which the compiler refers the species to Martyn's figure 10*e*. The tooth referred to is a projection on the outer lip of the shell (similar to that found in many of the Muricidae) said to assist these predatory molluscs to open the shells of lamellibranchs.

Fortunately the two shells particularly mentioned by Banks are still in the collection, but unlabelled, and the " Mussels and Clams " are also well represented among the specimens from Tierra del Fuego listed below.

Fissurella picta Lamarck	— — —
Acanthina calcar (Martyn)	*Buccinum monodon* Sol. MSS. Terra del Fuego.
Buccinulum antarcticum Reeve	— — —
Trophon philippianus Dunker	— — —
Aulacomya ovalis (Lamarck)	T. del Fuego.
Mytilus chorus Molina	— — —
Mytilus edulis Linné	Terra del Fuego.
Modiolarca trapezina (Lamarck)	*Mytilus gibbus* Sol. MSS. T. de F. J.B.
Marcia exalbida (Dillwyn)	*Venus.* * * * Terra del Fuego.

The Tierra del Fuego specimens are characteristic of the locality and call for little remark ; the large *Mytilus chorus* polishes remarkably well, and its fine purple and mauve tinted valves adorned most of the older collections. From Solander's manuscript description the large *Marcia exalbida* was extremely common, and must have been principal among the clams said by Banks to be in great abundance, and not to be despised as food.

OTAHEITE (TAHITI)

The stay at Tahiti was a long one (13th April to 12th July, 1769), with ample opportunity for collecting, but little information regarding shells was given by Banks or Cook in their Journals, for their time was much taken up by preparations for observing the transit of *Venus*, and studying the manners and customs of the people. The few representative species of shells in the collection show once again that the larger and more attractive shells were probably gathered by others, for there is no shortage of specimens from Otaheite in the catalogues of the period.

One interesting reference to the mollusca is recorded by Banks, for on the 30th May, 1769, he notes : " Carpenters employed to-day in repairing the long-boat, which is eaten in a wonderful manner ; every part of her bottom is like a honey-comb, some of the holes being an eighth of an inch in diameter, such progress has this destructive insect made in six weeks ". Banks was of course referring to the ravages of a species of Ship Worm (*Teredo*), an enemy dreaded by the early voyagers, whose vessels were constructed almost entirely of wood. No Banks specimens of this *Teredo* are available, but Pacific species are known to be particularly active from April to October (Ricketts & Calvin, 1948, p. 252).

Shells of the Conidae form the bulk of the following list of Tahiti shells, several of which were described for the first time by Solander in manuscript, and later adopted by Bruguière from the *Portland Catalogue* or from named specimens purchased from Humphrey.

Modiolus auriculatus Krauss	*Mytilus modiolus* Otaheite.
Modiolus metcalfei Hanley	*Mytilus modiolus* Otaheite.
Chlamys pallium (Linné)	*Ostrea pallium.* Otaheite.
Amphiperas tortilis (Martyn) (= ***costellata*** Lamarck)	*Bulla imperialis* Sol. MSS. Otaheite.

Dillwyn (1817, p. 473) gave priority to Solander's manuscript name, first printed in the *Portland Catalogue* (Lot 3391. Bulla imperialis, or pink mouth'd poached egg, from the *Friendly Isles*), but this cannot be accepted, as no reference was given to a figure. This species is the *Cypraea tortilis* figured by Martyn (1788, t. 60), also from the Friendly Isles and included in Dillwyn's synonomy.

Cypraea ventriculus Lamarck	*Cypeaea achatina* Sol. MSS. Otaheite.
Cypraea caputserpentis Linné	*Cypraea caputserpentis* L.
Bullaria ampulla (Linné)	*Bulla ampulla* L. var. A.
Large Tahiti form	Oceano Pacifico.
Conus textile Linné	*Conus textilis.* Otaheite.
Conus striatus Linné	*Conus striatus.* Otaheite. J.B., D.S.
Conus litteratus Linné	*Conus literatus.* Otaheite.
Conus sponsalis Bruguière	*Conus sponsalis* Sol. MSS. Otaheite. Byron Pacific Oc.
Conus tessulata Born	*Conus tessulata.* Otaheite. J.B.
Conus arenatus Bruguière	*Conus arenatus* Sol. MSS. Otaheite.
Conus eburneus Bruguière	*Conus glaucus* L. Otaheite.
Conus pulicarius Bruguière	*Conus pulicarius* Sol. MSS. Oceano Pacifico Otaheitensis.
Conus ebraeus Linné	*Conus ebraeus* L. Oceano Pacifico Otaheitensis.
Conus vermiculatus Lamarck	*Conus princeps* Martini. Oceano Pacifico Otaheitensis.

Before following the course of the " Endeavour " south to New Zealand, there is a specimen of *Lathirus prismaticus* (Martyn) to be recorded from the Banks collection, which may suitably follow the Tahiti series. The refractory powers of the periostracum of this species caused a great deal of interest to the early collectors. It was first figured by Martyn, (1784 1, fig. *2b*) as *Buccinum prismaticum,* from the Friendly Islands, no doubt brought back from Cook's second voyage. Martyn inserted a leaflet in the first volume of his work headed *Observations on the Explanatory Table,* the special observations on fig. 2 reading as follows :

> "A very singular appearance, hitherto never observed of any other shell, is produced on this, by dipping it in water. The many small risings, or ribs of the shell, from a brown, are in a few moments changed to a rich and lucid blue, which beautiful effect again gradually dies away, as the shell becomes dry . . . The shell is shown in both its states."

Martyn succeeded in conveying this lucid blue of the nodules of the wet shell, by having his figures coloured with thick dabs of an almost metallic blue paint, held together with touches of gum arabic, a treatment that has caused the colour to crack and flake off in some copies of the plate. Solander labelled this unusual shell *Buccinum Iris* in the Portland collection, for it appears at least three times in the printed catalogue, with a reference to Martyn's figure in each case, obviously added by Humphrey.

Lot 301. Buccinum Iris, *S. Martyn, Vol.* 1, *fig. 2b, the epidermis of this singular species when wet is of various colours, and is exceeding scarce*
(Sold for £2.18.0 cash.)

Lot 1455. Buccinum Iris, *S. Martyn, Vol.* 1, *fig.* 2*b*, very fine and *extremely scarce*
(Sold for £2.2.0 to Humphrey).

Lot 3356. Four curious species of Buccina viz three of Purpuratum, one of Aulicum one of Iris, *S.* Martyn, Vol. 1, fig. 2b and four singular Murices, *all rare*
(Sold for £1.12.0 cash.)

The prices paid for this small but attractive shell indicate the interest aroused at the time, not only here, but on the continent, for Chemnitz (vol. x, p. 284, 1788) follows a repetition of Martyn's observations with the information that Spengler paid as much as three guineas for a single specimen. To whom this was paid is not recorded by Chemnitz, but there is little doubt that it was to the purchaser of Lot 1455 noted above.

Dillwyn (1817, p. 741), records the species as the *Murex prismaticus* of Chemnitz, and repeats Humphrey's description of its iridescent properties. He later complains that *Buccinum Iris* does not appear among Solander's manuscripts in Sir Joseph Banks's library, an omission now known to be due to the fact that Solander left the genus *Buccinum* incomplete.

The Banks specimen of *L. prismaticus,* when placed in water, shows the iridescent colour only near the lip of the shell, due perhaps to the perishing of the periostracum during the last 180 years, but shells from the Cuming and Gray collections, gathered over a century ago, still show a fine blue iridescence when placed in water.

NEW ZEALAND

As in the account of Tahiti, there is little of note regarding shells in Banks's *Journal* during the circumnavigation of New Zealand (October 8th to March 31st, 1770), but there are one or two references to the mollusca as a welcome source of extra food ; accordingly, on the 10th November, a meal of broiled shags was followed by one of a different kind, supplied to Banks and his party at a small village in Mercury Bay (N.W. Coast of N. Island), where they were " most civilly received by the inhabitants, who treated us with hot cockles, or at least a small flat shell-fish (*Tellina*), which was most delicious food ". This was probably *Amphidesma ventricosum* (Grey), the Toheroa of New Zealand, said by Suter (1913, p. 959) to be particularly plentiful on the northern shores, especially the west coast, and still considered a great delicacy. The next day, an oyster bank was found, and the " Endeavour's " longboat was filled with " as good oysters as ever came from Colchester, and of about the same size . . . the ship's company, I sincerely believe, did nothing but eat from the time they came on board until night ". These were without doubt the famous Auckland rock oysters, *Ostrea glomerata* Gould, common to the Hauraki Gulf, and still consumed in large quantities from May to September (Suter, 1913, p. 891).

From Banks's concluding remarks on New Zealand (*Journal*, p. 227), where he notes the plentiful supply of excellent oysters, cockles, clams and many other sorts of shell-fish, etc., one would have expected rather more than the eight typical New Zealand shells found in his collection and listed below, but again it is evident that botany was his main pursuit, molluscs being attractive mainly as a source of extra food.

Notirus reflexus (Gray)	*Venus.* * * * Nova Cambria (in error ?).
Aulacomya maoriana Iredale = ***magellanicus*** Auct.	*Mytilus* * * * Novae Zelandiae. N.Z. J.B., D.S.
Mytilus canaliculus Martyn	— — — N.Z.
Musculus impactus (Hermann) (fig. 4, *a*, *b*, *c*)	*Mytilus gibbus* Sol. MSS. N.Z.
Chione stutchburii (Wood)	*Venus antiquata* Sol. MSS. Nova Cambria (in error ?). J.B.
Struthiolaria papulosa (Martyn)	*Murex* — — —
Buccinulum multilineum Powell (fig. 9)	*Murex.* N.Z.
Cymatium parthenopeus (von Salis)	*Murex olearium.*

Notable species among these few New Zealand shells are the very characteristic *Chione stutchburii* (Wood), and *Musculus impactus* (Hermann) (plate 15). The former was given the locality Nova Cambria (New South Wales) by Solander, probably in error, for no records of its occurrence there are known. *Chione stutchburii*, frequently attributed to Gray, was first figured by William Wood (1828, pl. 2, fig. 4), from a specimen in the British Museum, with the locality Sandwich Islands. How this locality came to be given to this typical New Zealand species is now impossible to say, but there are certainly two specimens attached to a tablet, with the locality Sandwich Islands altered in pencil to New Zealand, and it seems quite likely that it was from this tablet that Wood took his figured specimen, probably brought back from one of Cook's voyages.

The clusters of *Musculus impactus*, one of which is shown in fig. 5, are of great interest; fresh and as firm as though collected recently, they are part of the first consignment to be brought to this country in 1771, their similarity, except in size, to our own *Musculus discors* (Linné), causing much confusion among contemporary authors. Solander first confused it with his own *Mytilus gibbus* in the Banks Collection, then renamed it in his manuscript, where it will be seen to have been later altered to the *M. discors* Linné (fig. 7). Da Costa (1778, p. 222–3) concludes his description of the Linnean *discors* as follows:

> " All that *Linnè* had *seen*, as well as all those found on our *coasts*, *are very* small, thin, and delicate; but a kind no wise different, except in size and colour, being larger than a great walnut, and quite brown, was brought from the southern hemisphere by that great and national honour Capt. Cook, the circumnavigator, in the late expeditions for the discovery of new countries. These also were intirely *unknown to* all our collectors; and, as they only differ in *size*, *thickness*, and *colour*, but are exactly the same in structure, way of life, and other particulars, as these of our coasts, is it a *distinct species*, or *variety* only? "

Donovan, in *The Natural History of British Shells* (Vol. 1, 1804, text to pl. xxv) also concludes his description of *M. discors* in the same vein, remarking that, according to Gmelin " it is likewise noted as a native of the Southern Ocean ", and then he proceeds to repeat the observations of Da Costa *verbatim*, as a footnote, adding that " As a figure of this very analogous kind may be acceptable, it is introduced in the annexed plate at fig. 2 ".

Gmelin certainly noted that *M. discors* occurred also in the Southern Ocean, and included in his synonomy a reference to Hermann, in Volume XVII of the *Naturforscher* (1782), wherein this New Zealand species was clearly described as *Mytilus impactus*, with quite good figures (pl. iii, figs. 5–8), but the idea that it was only a large form of the Linnean *discors* persisted, partly due, no doubt, to the habit of forming a nest of byssal threads, indulged in by both species. The systematic position of *Musculus impactus* was in doubt for many years, for according to Suter's synonomy (1913, p. 869), the species has been referred by various authors to *Mytilus Modiola*, *Crenella*, *Modiolaria* and *Modiolarca*.

Australia (New South Wales and Queensland)

Having satisfactorily proved that New Zealand, the land seen by Tasman in 1642, was a series of islands and not the edge of a vast Southern continent, as predicted by the early geographers, the " Endeavour " progressed in a westerly direction, eventually sighting land (South of Cape Howe), on the 19th April, 1770, the first landing being made on the afternoon of the 28th, at Sting Ray Bay (later renamed Botany Bay).

Much botanical collecting was done by Banks and Solander at this classical locality, and it appears that shells were also taken here, notably several *Bullaria botanica* Hedley, one of the commonest species on the tidal flats of New South Wales. On the 23rd May, a party went ashore further north, at Bustard Bay, where, apart from shooting a large bustard, which provided the next day's dinner, and observing various other birds, Banks noted that on the mud banks, under the mangrove trees were " innumerable oysters, hammer oysters, and many more sorts, among which were a large proportion of small pearl oysters. Whether the sea in deeper water might abound with as great a proportion of full-grown ones, we had not an opportunity to examine, but if it did, a pearl fishery here must turn out to immense advantage ".

The main Australian pearl fisheries are now carried on more to the north and north-west (Torres Strait, Darwin, Broome, etc.) where the larger and more valuable species occur. The small pearl shells mentioned by Banks, of which several are in his collection (fig. 14), are typical of Port Hacking, Broken and Botany Bays, and Sydney, " frequenting sandy mud-flats in tidal bays and inlets along the coast " (Allen, 1950, p. 267). As already noted, examples of the Hammer Oysters (*Malleus*) mentioned by Banks, were also brought back and duly described by Humphrey, Donovan and other authors.

Although many specimens in the Banks Collection were not actually localized by Solander, it is only reasonable to suppose that the bulk of them were brought back from the " Endeavour " voyage, for while many of the species, especially the Cowries, are common to the Indo-West-Pacific, and may have been collected earlier by Captains Byron or Wallace, it cannot be entirely due to coincidence that so many of these same species have been recorded from New South Wales and Queensland, particularly from the coastal districts of the latter, now known, appropriately enough, as the Banksian Province of the Australian Region. Indeed, Iredale (1939*b*, p. 211) states quite definitely that " every shell known from Queensland before 1820, must have been procured by Cook's party ". This statement seems to confirm the view that the single unlabelled specimen of the dorsally speckled form of *Cypraea humphreyii* Gray, said by the same author (1939, p. 126) to be common only to Queensland and New South Wales, must have been brought back by the " Endeavour" in 1771.

This small Cowry is presumably one of the shells collected on the Barrier Reef during the prolonged stay (18th June–10th July, 1770), while repairs were being made to Cook's vessel, after the accident that so nearly proved fatal to all concerned. In his *Journal* (Ed. 2, p. 144) Sydney Parkinson tells how " During the time we stayed here we picked up a great many natural curiosities from the reef we struck upon, consisting of a variety of curious shells, most of which were entirely new to Mr. Banks and Dr. Solander ".

During this period, the "Endeavour's" pinnace was often busy searching for a passage through the shoals, and on one of these trips the crew landed on a dry reef " where they found great plenty of shell-fish, so that the boat was completely loaded, chiefly with a kind of cockle (*Chama gigas*) one of which was more than two men could eat ; many indeed were larger. The coxswain of the boat, a little man, declared that he saw on the reef a dead shell of one so large that he got into it, and it fairly held him" (Banks's *Journal*, p. 284). This account was not exaggerated, for the Giant Clams (*Tridacna*), grow to enormous sizes on the Barrier Reef, and have been known to reach over three feet in length and weigh anything up to 500 lb. (Allen, 1950, p. 321). Dampier also noted the occurrence of these large clams during his visit to the north-west coast in 1699.

List of Australian Shells in the Banks Collection with occasional remarks.

Modiolus auriculatus Krauss	— — —
Amygdalum arborescens (Dillwyn)	*Mytilus ornatus* Sol. MSS.
Brachidontes hirsutus (Lamarck) (fig. 15)	New Holland.
Septifer bilocularis	Marked D.S. on label.
Lithophaga teres Philippi	*Mytilus lithophagus.*
Mytilus planulatus Lamarck	New Holland.
Aulacomya maoriana Iredale	*Mytilus discors* Linn. New Holland.
Crenatula nigrina Lamarck	— — —
Electroma georgiana (Quoy & Gaimard)	— — —
Electroma punctulata (Reeve)	— — —
Austrapteria lata (Gray)	*Mytilus hirundo* L.
Pinctada reeveana (Dunker)	New Holland.
Pinctada margaritifera (Linné)	,, ,,
Pinctada vulgaris (Schumacher)	,, ,,
Pinctada vulgaris panasesae Jameson	— — —
Pinna muricata Linné	*Pinna nebulosa* Sol. MSS.

The last named may be the *Quantulopinna delsa* of Iredale, who discusses the species at length (1939*b*, p. 311). In this Great Barrier Reef Report, much interesting data will be found relating to the other species in this list, but as his single figure of *Q. delsa* (pl. iv, fig. 16) shows little difference from accepted forms of the Linnean *P. muricata* recently examined, the older name has been retained for the Banks specimens.

Chlamys asperrimus (Lamarck)	— — —
Lima (Stabilima) tadena Iredale	South Seas.
Lima (Austrolima) nimbifer Iredale	Nova Cambria.
Saxostrea commercialis Iredale & Roughley	New Holland.

This specimen of *S. commercialis* is attached to a fair-sized shell of *Pyrazus ebeninus*, a common gastropod found on the mud-flats of New South Wales and Queensland (fig. 11). The shell of the oyster is typical of the stunted and thickened seashore form described by Iredale (1939*b*, p. 399), and is the common commercial oyster of Australia, which is particularly abundant in New South Wales where large numbers are marketed annually. An excellent description with photographs of modern oyster culture, foreshadowed by the enjoyment of this same species of Australian oyster by Banks and his party, is given by Dakin in his book on the Australian seashores (1953, pp. 289–92).

Batissa triquetra Deshayes	*Venus erosa* Sol. MSS.

This North Australian and Queensland species, of which there are two small but fresh-looking specimens in the collection, was first described in manuscript by Solander as *Venus erosa*, with the authentic locality Nova Cambria, and marked J.B. This same locality is marked in pencil on the interior of both valves of one specimen (fig. 10). The species appears twice in the *Portland Catalogue*, both entries worded differently.

Lot 1603 (p. 71). *Venus Erosa, S. a large and singular fresh-water Bivalve, from* New South Wales, extremely rare.

Lot 3961 (p. 186). Venus Erosa, S. a very curious undescribed species of freshwater bivalve, with a black epidermis, and fine purple inside, the country unknown, *very rare.*

Even more curious is the obvious discrepancy between these two entries, but as they are separated by over 2,000 separate lots, it must be attributed to the flagging zeal of the compiler. Dillwyn (1817, p. 177) places the *Venus erosa* of Solander in the synonomy of *Venus coaxans* Gmelin, for which he quotes the Chemnitz locality "Ceylon", although he had seen the more reliable Nova Cambria and New South Wales of the Solander manuscripts and *Portland Catalogue.*

The first part of Dillwyn's description is certainly applicable to Gmelin's *Venus coaxans*, but he goes on to say : "I suspect that this is the *Venus erosa* of Solander, and Mr. Humphrey describes the epidermis in one of the specimens in the Portland cabinet to have been black, of which colour it had probably been stained by the mud, as is frequently the case with many other fresh-water shells." This nearly black epidermis, however, is a distinguishing feature of the *Batissa triquetra* Deshayes, as opposed to the olive brown of *Geloina* (= *Cyrena*) *coaxans* (Gmelin), both species occurring together among the mangroves of Queensland (Allen, 1951, p. 403).

In the extract from p. 177 of Dillwyn's text, it is of importance to note the reference to Humphrey as the author of the *Portland Catalogue* (see p. 88).

Codakia rugifera (Reeve)	— — —
Codakia tigerina (Linné)	*Venus tigrina* Linn.
Corbis fimbriata (Linné)	*Venus fimbriata* L. *Nova Cambria.* J.B., D.S.
Liochoncha castrensis (Linné)	*Venus castrensis* L.
Lioconcha varians (Hanley)	*Venus juvenca* Sol. MSS. Nova Cambria. J.B.
Gafrarium scripta (Linné) (fig. 8.)	*Venus scripta* var. B. D.S.
Gafrarium pectinatum (Linné)	*Venus pectinata* L. N.H. J.B., D.S.
Gafrarium tumidum (Röding)	*Venus expansa* Sol. MSS. Nova Cambria. J.B., D.S.

Pitaria pellucida (Lamarck)	— — —
Macrocallista maculata (Linné)	*Venus maculata* L. var. A. Nova Cambria.
Dosinia anus Philippi	*Venus lincta.* N.H. Nova Cambria.
Antigona puerpera (Linné)	*Venus puerpera* L. J.B.
Antigona reticulata (Linné)	*Venus reticulata* L. Nova Cambria. N.H.
Chione marica (Linné)	— — —
Chione foliacea (Philippi)	*Venus dysera* L. Nova Cambria.

The Banks specimen of this shell was identified from specimens labelled *foliacea* in the British Museum collection, and is one of the species belonging to the *Venus dysera* complex discussed very fully by *Dodge* (1952, pp. 89–92)

Paphia philippinarum (Reeve)	*Venus decussata* L. var.
Asaphis deflorata (Linné)	*Venus deflorata* L.

Linné confined the distribution of *Asaphis deflorata* only to Europe, although it had been recorded from Barbadoes and accurately figured by one of his chief mentors, Martin Lister (Lib. III, 1687, pl. 425). Solander recorded several localities and described no less than five colour varieties from the Indian Ocean, Japan, Pegu, Suratte and Malacca, localities now recognized to have been obtained from the Sloane collection and catalogues (Wilkins, 1953, p. 9 *et seq.*) ; but the locality New Zealand, written on one of the ten specimens of *A. deflorata* in the Banks collection, was probably intended for New Holland.

Notocorbula tunicata (Hinds)	*Venus.* * * *
Cerithideopsilla fluviatilis Potiez	New Holland.
Pyrazus ebeninus (Bruguière) (fig. 11)	*Murex aluco-nigra.* New Holland.

P. ebeninus is still known to Australian conchologists as the Hercules Club, an ancient vernacular name which appears several times in the Portland and other early catalogues. It was first named and figured by Martyn in the *Universal Conchologist* as *Clava Herculea* (vol. 1, 1784, f. 13) from a specimen in the Humphrey collection ; it is also known as the Mud Whelk, the species being very common on the sandy mud flats round Sydney, Botany Bay and the upper reaches of Port Jackson. The presence of several specimens of this characteristic New South Wales shell in the Banks collection confirms Allan's remark (1951, p. 87), that " the Hercules Club was amongst the first shells to be taken back to England from Australia, being taken there by Captain Cook ".

Cerithium nodulosum Bruguière	*Murex aluco.*

The *C. nodulosum* or Coral Reef Creeper, another species of Hercules Club, was frequently confused with the smaller *Pyrazus ebeninus* by early authors. It is essentially a coral reef form, particularly common on the Great Barrier Reef.

Cerithium tuberculatum (Linné)	*Murex tuberculatus.* New Holland.
Cerithium morus Lamarck	New Holland.
Cerithium echinatum Lamarck	*Murex aluco.*
Cerithium (Aluco) aluco (Linné)	*Murex aluco* Linn.
Cerithium (Rhinoclavis) vertagus (Linné)	*Murex vertagus.*
Cerithium (Rhinoclavis) obeliscus Brug.	*Murex turris chinensis.*
Cerithium (Rhinoclavis) lineatum Brug.	*Murex turris obeliscus.* New Holland.
Cerithium (Rhinoclavis) asper (Linné)	*Murex granulatus* Sol. MSS. New Holland.
Amphiperas ovum (Linné)	*Bulla ovum.*

The last named species, known commonly as the White Egg Cowry, is used in the Pacific as a canoe ornament. Amongst other places it is recorded from the Solomon and Torres Straits Islands, where it is reported by Jackson (1917, p. 175) to be worn as an ornament for the neck, breast or leg. Spectacular pendants composed entirely of *A. ovum* form an important part of the regalia of the aborigine Elders of Australia (Allen, 1951, pl. 13).

Calpurnus verrucosus (Linné)	*Bulla verrucosa.*
Pustularia cicercula (Linné)	*Cypraea cicercula.*
Pustularia globulus (Linné)	— — —
Pustularia childreni (Gray)	— — —

The remaining Cypraeidae found in the Banks collection are listed under the genera used by Schilder & Schilder (1938–39), and as most of the species are well-known, their numerous sub-genera have been omitted for the sake of brevity. As already noted, many of these Cowries are common Indo-West-Pacific species, but all those included below have been recorded from New South Wales and Queensland.

Staphylaea staphylaea (L.)	*Cypraea staphylaea* var. A.
Staphylaea facifer Iredale	*C. oryza* Sol. MSS.
Staphylaea nucleus (L.)	— — —
Erosaria helvola (L.)	*Cypraea helvola* L.
Erosaria poraria (L.)	— — —
Erosaria erosa (L.)	— — —
Monetaria annulus (L.)	*Cypraea annulus.*
Monetaria moneta (L.) nodulous form	*Cypraea moneta* var. C.
Monetaria obvellata (Lamarck)	*Cypraea moneta.*
Erronea onyx (L.) Juvenile	*Cypraea onyx-dubius.*
Erronea errones (L.)	New Holland.
Erronea caurica (L.)	— — —
Palmadusta punctata (L.)	— — —
Palmadusta asellus (L.)	*Cypraea asellus* L.
Palmadusta clandestina (L.)	— — —
Palmadusta humphreyii (Gray)	— — —
Palmadusta ziczac (L.)	*Cypraea zikzak.*
Evanaria hirundo (L.)	*Cypraea hirundo* L. J.B.
Evanaria coffea (Sowerby)	*Cypraea umbilicata* Sol. MSS.
Blasicrura chinensis (Gmelin)	*Cypraea morbillosa* Sol. MSS.
Cribraria teres (Gmelin)	— — —

Cribraria cribraria (L.)	*Cypraea cribraria* L.
Luria isabella (L.)	*Cypraea isabella* L.
Callistocypraea testudinaria (L.)	*Cypraea testudinaria.*
Talparia argus (L.)	*Cypraea argos.*
Talparia talpa (L.)	— — —
Mauritia arabica (L.)	*Cypraea arabica.*
Mauritia arabica (L.) Juvenile	*Cypraea amethystea* L.
Mauritia maculifera Schilder. Juv.	*Cypraea amethystea* L.

Hanley (1855, p. 184) dealt very briefly with the *Cypraea amethystea* of Linné, saying that the specimen marked for the species in the Linnean cabinet was an example of the *C. histrio* of authors, having the outer coating of the dorsal surface artificially removed. A recent examination of the type specimen reveals that it is a typical and mature *C. arabica* L., rubbed or worn right down to the violet inner layer, and sufficiently highly polished to give the appearance of natural enamel to a not too critical eye.

Solander accepted *C. amethystea* as a good species, to which he referred specimens now seen to be juveniles of the *arabica* group of Cowries ; these were accurately described in his manuscript and marked as present in the Banks and Portland collections. He had apparently seen beach-worn or polished shells of *C. arabica*, showing a purple or violet dorsum, and placed them among his numerous varieties of that species (*C. arabica* var. *E. testa detrita dorso violaceo*, M.C.P.). Dillwyn (1817, p. 439) also considered the Linnean *C. amethystea* to be the juvenile stage of *C. arabica*, listing it as such in his synonomy, and stating that young shells are bluish grey, variously clouded or banded with brown ; later the back becomes brownish or dull blue, in which stage of its growth it is known by the name of *C. amethystea*, or Smoke Cowry. Then follows the suggestion that Linné was not aware of the different appearances of the Cowries at different periods of growth " and from want of this knowledge, he has described the present species under three different names."

The three names referred to by Dillwyn were *C. arabica*, which still stands, *C. amethystea*, an error due to polishing, and *C. fragilis*, an intermediate stage of the first. In 1845 Reeve (*Cypraea*, sp. 2) followed Dillwyn in attributing the Linnean *C. amethystea* to juveniles of *C. arabica* ; and only recently Dodge (1953, p. 70–71), working at long range, confessed his difficulty in identifying the species from the available literature, even doubting the veracity of the *dorso violaceo* of Linné's description. Three of the four authors mentioned above did not see the Linnean holotype ; had they done so, the error in giving a name to this mature but maltreated shell would have become immediately apparent. Incidentally, Dodge (p. 70) was unable to confirm the occurrence of worn *arabica* group Cowries showing a violet dorsum, but beach-worn specimens of at least two species recently examined show violet coloration of the dorsal area, which would equal the intensity of the Linnean shell, if highly polished.

Mauritia maculifera Schilder	*Cypraea arabica* var. C.
Mauritia histrio (Gmelin)	*Cypraea arabica* var. D.
Mauritia mauritiana (Linné)	*Cypraea mauritiana.*
Mauritia mauritiana, Juvenile	*Bulla non-umbilicata.*
Cypraea tigris (Linné), Juvenile	*Bulla cypraea.*

Dillwyn's statement regarding Linné's lack of knowledge of the growth stages in *Cypraea,* can only be related to intermediate stages, for in the description of his *Bulla cypraea* in the Tenth and Twelfth editions of the *Systema Naturea* he indicates, by a cross reference, that the shell is a larval, or early stage of *Cypraae. Bulla cypraea* was not numbered as a species in the Tenth Edition, being inserted in *Bulla* " as a precautionary measure, because the less experienced naturalists would naturally search for the names of the young *Cowries* in that genus " (Hanley, 1855, p. 209).

Cypraea Vanelli L.	*Cypraea lynx.*
Cypraea Vanelli L., Juvenile	*Cypraea vanelli* L.

Cypraea Vanelli was described by Linné from an intermediate stage of his own *C. lynx,* which appeared on the succeeding page of the Tenth Edition of the *Systema* (*p.* 721, 303), a fact overlooked by Dillywn, who allowed it to remain as a good species. Dodge (1953, p. 72) suggested that the substitution of *C. Vanelli* for the well-known *C. lynx* would unnecessarily confuse the nomenclature, but *Vanelli* had already been substituted by Iredale (1935, p. 110), evidently on page precedence, and now appears in the Australian literature, without comment (Iredale, 1939*a*, p. 299; Allen, 1951, p. 126).

Cypraea vitellus L.	*Cypraea vitellus.*
Cypraea carneola L.	*Cypraea carneola.*
Cymatium pyrum (L.)	*Murex pyrum.*
Cymatium tripus (Lamarck)	*Murex femorale.*
Cymatium parthenopeus (von Salis)	*Murex olearium.*
Cymatium chlorostoma (Lamarck) (fig. 13.)	*Murex.*
Distortrix anus (L.)	*Murex anus.*
Bursa albivaricosa (Reeve)	*Murex rana.*
Bursa granifera (Lamarck)	*Murex gyrinus* L.
Bursa rubecula (L.)	*Murex rubecula* L.
Pirula ficus (L.)	*Bulla ficus* L.
Murex monodon Sowerby	*Murex ramosus* L.
Murex adustus Lamarck	*Murex ramosus.*
Murex torrefactus Reeve	*Murex ramosus.*
Murex ternispina Lamarck	*Murex tribulus.*
Murex haustellum L.	*Murex haustellum.*
Nucella amygdala (Kiener)	*Murex.*
Phos senticosa (Linné)	*Murex senticosus.*
Engina alveolata Kiener	— — —
Galeodes pugilina (Linné)	*Murex pugilinus.*
Megalotractus aruanus (L.), Juvenile	— — —

M. aruanus, the False Trumpet shell of the Indo-Pacific and Northern Australia may be over two feet in shell length when fully grown, and is used by the natives as a very efficient water carrier, the long canal serving as a spout. The smooth texture of the shell makes it particularly suitable for the manufacture of personal ornaments. (Allen, 1951, p. 158).

Lathirus polygonus (Linné)	*Murex or Fusus polygonus striatus.*
Lathirus gibbulus (Linné)	*Murex or Fusus polygonus striatus.*
Lathirus nodatus (Quoy & Gaimard)	*Murex.*
Peristernia nassatula (Lamarck)	*Murex.*
Peristernia ustulata Reeve	*Murex.*
Fasciolaria filamentosa Lamarck	— — —
Colus colus (Linné) (fig. 12)	*Murex colus.*
Fusus tuberculatus Lamarck	*Murex colus.*

In concluding this list of *Murex* it should perhaps be noted again that Solander did not complete his manuscript descriptions of the genus, and this accounts for the number of repetitions and blank labels found in the *Murex* drawer of the collection. It appears that an unknown worker commenced labelling as many shells as he could from the available literature, after which Solander would give his final judgment, naming and describing any species that did not agree with those already in the *Systema Naturae.* Thus the three separate species *monodon, adustus* and *torrefactus,* all attributed by the helper to the Linnean *M. ramosus,* would have certainly been described as new when critically examined by Solander.

Bullaria botanica Hedley	*Bulla ampulla* var.

The presence of this species, probably from Botany Bay, has already been mentioned (p. 99), and was formerly known as *Bulla australis,* a suitable but preoccupied name used by Gray (1825, p. 408) when describing specimens collected by Captain King, during his survey of the coast of Australia from 1817–1822.

Hydatina physis (Linné)	*Bulla* * * *
Conus anemone Lamarck	— — —
Conus catus Bruguière	— — —
Conus coronatus Gmelin	*Conus stercus muscarum.*
Conus distans Bruguière	*Conus distans* Sol. MSS.

C. distans is another example of an original Solander name taken from the *Portland Catalogue* (Lot 1450), or from named specimens purchased from Humphrey. Localized specimens in the British Museum collections show the range of the species to be North Australia to Tahiti, but Bruguière gave the type locality New Zealand, and was followed in this by Dillwyn (1817, p. 389), and Tomlin (1937, p. 241). No species of *Conus* have been found to occur in New Zealand.

Conus eburneus Bruguière	*Conus glaucus.* Nova Cambria.

There are twenty specimens of *C. eburneus* in all stages of growth in the collection, many with the periostracum still preserved *in situ.* A further series of *Conus,* all labelled Nova Cambria, are listed below with the specific names only :

C. ebraeus Linné
C. figulinus Linné
C. flavidus Lamarck
C. generalis Linné
C. lividus Bruguière
C. quercinus [Humphrey]
C. nussatella Linné
C. litteratus Linné
C. magus Linné
C. marmoreus Linné
C. pulicarius Bruguière
C. textile Linné
C. virgo Linné
C. vermiculatus Lamarck

Conus quercinus is an example of part of a Martini trinomial name introduced into the binomial nomenclature by Solander. The *Conus Lignum Quercinum* of Martini (**2**, p. 299, f. 657, 1773) was referred to by Solander in his manuscript description of *C. quercinus*, followed by the initials M. C. P., and thus it appears for the first time in the *Portland Catalogue* in 1786 (Lot 1501), Conus quercinus *S. Martini, Vol.* II, 657), and should therefore be attributed to Humphrey rather than to Bruguière, who next published the name in 1792 (p. 681). Dautzenburg (1937, p. 206) places Bruguière (1792) as the first publisher of the binomial name in his ninety-five references to *C. quercinus* in the literature from 1742 to 1933, but this exhaustive list does not include the earlier Portland entry 1501, although *C. quercinus* Solander is quoted from Dillwyn (1817, p. 394) where it was duly recorded.

Although probably part of Solander's original material, no type status is claimed for the large specimen of *C. quercinus* in the Banks collection, for it bears no label beyond a scrap of paper marked N.C. (Nova Cambria), and the initials J. B. do not occur in Solander's original description.

New Guinea to Java

Although there is little definite proof that the following miscellaneous Indonesian species were actually gathered on the return voyage of the "Endeavour," there appears to have been ample opportunity for collecting at Savu, Batavia and Prince's Island, in spite of the intermittent bouts of fever and sickness suffered by Banks and Solander. No specific mention of shells was made by Banks in his *Journal*, but Solander mentions a few living molluscs in the Java section of his manuscript list of animals observed during Cook's first voyage, notably *Cypraea tigris* L. of which a fully grown specimen is in the Banks collection, clearly seen in the complete drawer of *Cypraea* (see fig. 1).

Mytilus smaragdinus Linné	— — —
Chlamys tigris (Lamarck)	— — —
Codakia punctata (Linné)	*Venus punctata* L.
Chione marica (Linné)	*Venus marica.*
Terebellum subulatum Lamarck	*Bulla terebellum.*
Erronea caurica (Linné)	*Maldives & Guinea.*
Cypraea tigris Linné	Java Sol. MSS.
Colubraria distortus Schubert & Wagner	— — —
Colubraria testaceus Mörch	— — —
Thais margariticola (Broderip)	New Guinea.
Murex capusinus Lamarck	— — —
Turris cinguliferus (Lamarck)	*Murex turris Babylonicus.*

Turris citharella (Lamarck)	*Buccinum cithara.*
Turris javanus (Linné)	*Murex Javanus.*
Turris tigrina (Lamarck)	*Murex Turris Babylonicus.*
Turris tornata (Dillwyn)	Murex.
Atys naucum (Linné)	*Bulla naucum* L.
Conus terebra Linné	— — —
Conus varius Linné	— — —
Conus musicus Bruguière	*Conus* * * *
Conus imperialis Linné	*Conus corona imperialis.* Oceano pacifico. J.B., D.S.

DESCRIPTIVE CATLOGUE.—PART II

Specimens given to Banks from various localities up to the year 1782

1. SHELLS FROM BRITISH COLUMBIA, NEWFOUNDLAND, AND THE ATLANTIC COAST OF THE UNITED STATES OF AMERICA.

(*a*) British Columbia (Vancouver Island).

Nucella lamellosa cymica (Dall).
Nucella canaliculata (Duclos).
Euthria dira (Reeve).
Pteroytis foliatus (Gmelin).

These four typical species were undoubtedly brought back from Cook's third voyage (1776–1780), collected during the stay of the " Discovery " and " Resolution " in Nootka Sound, from 29th March to 26th April, 1778. *P. foliatus* is of particular interest, for it appeared frequently in the early literature and sale catalogues. Cook (1778, **2**, p. 299) briefly described the molluscs of Nootka, where mention is made of " a curious *murex*, rugged wilks, and a snail, all which are probably peculiar to this place". It was first figured by Martyn in 1784 (vol. **2**, pl. 66) as *Purpura foliata* with the locality King George's Sound, the name chosen by Cook before adopting the native name of Nootka. The species appears several times in the *Portland Catalogue* of 1786, notably in Lot 1848, where it is referred to as " the foliated Purpura, a new species from the *N.W. Coast of America* ", and in Lot 3036, with the full locality " *King George's Sound, on the N.W. Coast of America* ".

Although the species was clearly described by Gmelin in 1791 (p. 3529, 174), it still appeared in the catalogue of the Leverian Museum in 1806 as " a scarce triplex from *Nootka Sound* (Lot 196), and the " foliated triplex, *Nootka Sound* " (Lot 2009). The two specimens of *P. foliatus* in the Banks collection were obviously collected alive, for the dried animals and opercula are still within the shells.

(*b*) Newfoundland

Chlamys islandicus (Müller)	*Ostrea demissa* Sol. MSS.

Solander described this species in his manuscript as *Ostrea demissa*, later named *Pecten islandicus* by Müller (1776, p. 248), and *Ostrea cinnabarina* by Born (1778, p. 87). Solander added a note to his manuscript saying that the specimen was taken from a cod's maw by J. Banks on the banks of Newfoundland, and as this is the only example of *C. islandicus* in the collection, it is presumed to be the actual shell taken by Banks during his visit to Newfoundland and Labrador in H.M.S. "*Niger*" from April to November, 1766. Dillwyn (1817, p. 256), who seems to have been unaware of Müller's name, retains the *O. cinnabarina* Born, quoting *O. demissa* Solander MSS. as a synonym, and duly records the information (obviously taken from Solander's manuscript note), that "Sir Joseph Banks procured a specimen from the stomach of a cod on the banks of Newfoundland".

(*c*) Atlantic Coast of the United States

Venus (Mercenaria) mercenaria Linné . — — —
Connecticut Sol. MSS.

This is the Hard Shell Clam or Quahog of the east coast, and is eaten in quantity in the form of "chowder" from April to September (Rogers, 1951, p. 348). According to various authorities the purple edge of the shell of this species was used by the natives to form their wampum or treaty belts. The Banks specimen lacks the purple coloration, and is the variety *alba* described by Dall.

Modiolus demissus (Dillwyn) . . *Mytilus demissus* Sol. MSS.
Lectotype. Plate 18, fig. 19. Carolina & Virginea

Dillwyn, Descriptive Catalogue of Shells (*Mytilus*), *p.* 314, 1817.

	Length	Height	Thickness
Dimensions of Lectotype . . .	95 mm. .	32 mm. .	29 mm.

Type locality: Carolina.

This is a straightforward example of a subsequent author's validation of a Solander manuscript name. Dillwyn's description (1817, p. 314) based on Solander's MSS. account, also referred to Lister's excellent figure of a specimen from Carolina (1687, tab. 358).

The species occurs from Virginia to Florida on the Atlantic Coast, and in recent years has been introduced into California on the Pacific Coast (Maxwell Smith, 1940, p. 99 and Keep, 1935, p. 64). Solander's manuscript (reproduced at fig. 18) is marked with the full set of locator initials, and there is little doubt that the examples in the Banks and Portland collections from Carolina were sent by Dr. Alexander Garden the elder (1730?–1791), of Charleston, who is known to have corresponded with Ellis and Solander (Smith, 1821, p. 282 *et seq.*). Those marked M.B. would be specimens brought from Carolina by Mark Catesby and given to Sir Hans Sloane at a much earlier date.

There are actually two specimens of *M. demissus* in the Banks collection; one large, now designated the Lectotype (fig. 19), and one smaller specimen, labelled by the donor *Salt Marsh Mussel, Pennsylvania.* This was probably sent by John Bartram of Philadelphia who supplied specimens of all kinds to the leading collectors of his day including Linné himself (Wilkins, 1952, p. 252).

2. Shells from the Caribbean and Bahama Islands

Modiolus tulipa Lamarck	*Mytilus modiolus* L. vars. A, B.
Modiolus modiolus (Linné)	*Mytilus flavicans* Sol. MSS.
Hormomya exustus (Linné)	*Mytilus exustus.*
Chlamys nodosus (Linné)	— — —
Chlamys ventricosa (Sowerby)	*Ostrea* * * *
Chlamys irradians (Lamarck)	*Ostrea* * * *
Pecten ziczac (Linné)	*Ostrea ziczac* L.
Lucina edentula (Linné)	*Venus edentula* L.

It may be of interest to note that, unlike Linné who gave no reference to a figure in his description of *Venus edentula,* Solander quoted Lister, tab. 260, fig. 96 (1687) in his manuscript, noting that examples were in the Portland, Banks and British Museum collections.

This is an instance where two out of the three examples so noted are in existence. The British Museum specimen is in the Sloane collection and is the identical shell figured by Lister. The interior shows the yellow coloration typical of the species and fits over Lister's figure exactly, factors which help to confirm the true identity of Linné's *Venus edentula,* discussed at such length by Hanley (1855, pp. 78–80) and more recently by Dodge (1952, pp. 117–118).

Lucina columbella Lamarck	*Venus pensylvanica* L. Jamaica.
Lucina pensylvanica (Linné)	*Venus pensylvanica.* Jamaica, Barbadoes. Antigua, Bahamas.
Codakia orbicularis (Linné)	— — —
Amiantis circinata (Born)	*Venus rubescens* Sol. MSS. Jamaica.
Amiantis dione (Linné)	*Venus dione* L.
Macrocallista nimbosa [Humphrey] Lectotype. (Plate 17, fig. 16)	*Venus nimbosa* Sol. MSS. Florida and Antigua.

Catalogue of the Portland Museum, p. 175, *Lot* 3761, 1786

	Length	Height	Thickness
Dimensions of Lectotype	110 mm.	60 mm.	26 mm.

Type locality: Florida.

Chione granulata (Gmelin)	*Venus* * * *
Chione cancellata (Linné)	*Venus cancellata* L. Bahamas.
Chione beaui (Recluz)	*Venus cancellata* L. Bahamas.
Chione grata (Say)	*Venus* * * *

Chione pygmaea (Lamarck)	*Venus* * * *
Chione paphia (Linné)	*Venus paphia.*
Anomalocardia impressa (Anton)	*Venus rostrata* Sol. MSS. Jamaica.
Cerithium ferrugineum Say	*Murex.*
Trivia pediculus (Linné)	*Cypraea pediculus.*
Cypraea Zebra Linné	*Cypraea exanthema.*
Cypraea Zebra, Juvenile	*Cypraea exanthema et Zebra dicta.*

A very full discussion of the *C. exanthema* and *C. Zebra* of Linné was recently published by Dodge (1953, pp. 61–63), from which it appears that the well-known *exanthema* must inevitably give way to the earlier *Zebra*, described by Linné from an immature banded specimen.

Cypraea spurca Linné	*Cypraea spurca.*
Cymatium pileare (Lamarck)	*Murex olearium.* Jamaica.
Murex brevifrons Lamarck	*Murex ramosus.*
Murex florifer arenarius Clench & Pérez Farfante	*Murex ramosus.*
Lathirus infundibulum (Lamarck)	— — —
Lathirus ocellatus (Lamarck)	— — —
Bullaria ampulla (Linné)	*Bulla amygdalus* Sol. MSS.
Bullaria solidula (A. Adams)	*Bulla amygdalus.*
Bullaria occidentalis (A. Adams)	— — —
Hydatina undata (Bruguière)	*Bulla nitidula* Sol. MSS.
Conus regius Gmelin	*Conus nebulosa* Sol. MSS.
Conus granulatus Linné	*Conus granulatus* L.
Conus mus Bruguière	— — —

3. Shells from the East Indies

(*a*) Specimens sent to Banks by J. G. Koenig from the Coromandel Coast

Modiolus modiolus (Linné)	*Mytilus* * * *
Septifer bilocularis (Linné)	*Mytilus bilocularis.* Koenig, Coromandel.
Pinctada vexillum (Reeve)	— — —
Chlamys senatoria (Gmelin)	*Ostrea pellucens* Sol. MSS.
Chlamys tranquebaricus (Gmelin)	*Ostrea undata* Born.
Chlamys coralinoides D'Orbigny	— — —
Chlamys squamosa (Gmelin)	— — —
Lima lima (Linné)	*Ostrea lima* L.
Lioconcha picta (Lamarck)	*Venus ornata* Sol. MSS. Koenig, Coromandel.
Pitaria albina (Lamarck)	Koenig. Ind. Orient.
Macrocallista textile (Gmelin)	*Venus polita* Sol. MSS. Koenig, Coromandel.
Macrocallista erycina (Linné)	*Venus erycina* L.
Sunetta scripta (Linné)	*Venus cytherea* Sol. MSS.
Meretrix formosa (Sowerby), Juvenile	*Venus laeta* L.
Meretrix formosa (Sowerby), Juvenile	*Venus* * * *
Paphia rotundata Linné	*Venus* * * *
Laternula plicata (Gray)	*Mytilus pellucens* Sol. MSS.

(*b*) East Indian species from other sources

Lithophaga nasuta Philippi	*Mytilus lithophagus.*
Chlamys imbricatus (Gmelin)	*Ostrea pellucens* Sol. MSS.
Lioconcha castrensis (Linné)	— — —
Pitar obliquata (Hanley)	— — —
Gafrarium dispar (Dillwyn)	— — —
Gafrarium divaricata (Gmelin)	*Venus divaricata ?*
Amiantis umbonella (Lamarck)	*Venus meretrix.*
Amiantis umbonella var nivea Hanley	— — —
Macrocallista maculata (Linné)	— — —
Macrocallista florida (Lamarck)	*Venus erycina* var.
Macrocallista lilacina (Lamarck)	*Venus erycina* var.
Sunetta solanderii Gray	*Venus* * * *
Sunetta contempta Smith	*Venus cythereaea* Sol. MSS. Madras.
Sunetta meröe (Linné)	*Venus meröe* L. Fort St. George.
Meretrix casta (Gmelin)	*Venus crassa* Sol. MSS.
Meretrix ponderosa (Philippi)	*Venus nitida* Sol. MSS.
Antigona listeri (Gray)	*Venus puerpera* L. Suratte, Siam.
Chione opima (Gmelin)	— — —
Timoclea cochinensis (Sowerby)	*Venus pectunculus* Sol. MSS. Madras, Pegu, etc.
Paphia literata (Linné)	*Venus literata* L. Pegu.
Paphia geographica (Gmelin)	*Venus* * * *
Paphia punicea (Deshayes)	*Venus* * * *
Asaphis deflorata (Linné)	*Venus deflorata* vars. A, B, C, D. Pegu, Suratte, Malacca.
Cypraea (Erosaria) turdus Linné	— — —
Cypraea (Erosaria) ocellata Linné	— — —
Cypraea (Palmadusta) undata Linné	*Cypraea undata.*
Cymatium cynocephalus (Lamarck)	*Murex pyrum.*
Cymatium retusum (Lamarck)	*Murex pyrum.*
Bursa crumena (Lamarck)	— — —
Ficus ficus (Linné)	*Bulla ficus.*
Murex rufus Lamarck	*Murex ramosus* L.
Atys cylindrica (Hebling)	— — —
Conus amadis Gmelin	— — —

4. SHELLS FROM WEST AFRICA (CAPE VERDE ISLANDS AND GUINEA COAST)

Smeathman, the botanist and entomologist, has already been mentioned among the contributors to the Banks collection (p. 89), and there is little doubt that some of the West African species listed below were collected during his employment by Banks and others in 1771.

Cardita ajar Bruguière	*Venus rugosa* L. Coast of Guinea.
Cardium pectinatum Linné	— — —
Chlamys flabellum (Gmelin)	— — —

Pitaria floridella (Gray)	*Venus* * * * Coast of Guinea.
Cerithium sowerbyi Kiener	— — —
Cypraea (Zonaria) sanguinolenta Gmelin	*Cypraea purpurata* Sol. MSS.
Murex megaceras Sowerby	— — —
Conus testudinaria Bruguière	*Conus* * * *
Conus testudinaria Bruguière	*Conus* St. Jago.

Two specimens of *C. testudinaria* have very clear St. Jago labels tucked inside the shells, and it is likely that these were brought back from Cook's second voyage, collected during the short stay at Port Praya on 10th July, 1772, perhaps by Capt. Furneaux whose name appears in the Solander manuscripts.

5. Specimens from the Mediterranean

Modiolus adriaticus Lamarck	*Mytilus modiolus* var. B. Turkey.
Lithophaga lithophaga (Linné)	*Mytilus lithophagus.*
Mytilus pictus Born	*Mytilus pictus.*
Chlamys opercularis (Linné) var. ***Audouini*** Payraudeau	*Ostraea aspersa* Sol. MSS. Mare Neopolitano. Sir William Hamilton.
Chlamys opercularis (Linné) var. ***subrufus*** Turton	Mediterranean.
Chlamys opercularis (Linné)	*Ostrea arguta* Sol. MSS.
Chlamys hyalina (Poli)	*Ostrea glabra.*
Chlamys sulcatus (Born)	*Ostrea glabra.*
Chlamys flexuosus (Poli)	— — —
Lima lima (Linné)	*Ostrea lima.*
Lima inflata Lamarck	*Ostrea bullata.*
Lucina pecten Lamarck	*Venus striatella.*
Macrocallista chione (Linné), Juvenile	*Venus* * * *
Venus striatula Da Costa	*Venus casina* L. Gibraltar and Tangier.
Paphia aurea (Gmelin)	*Venus nebulosa* Sol. MSS vars. A, B.
Corbicula fluminalis (Müll)	*Venus fluminalis.* Euphrates.
Cypraea (Zonaria) pyrum Gmelin	*Cypraea ochracea* Sol. MSS.

6. British Species, mainly from Weymouth, Dorset

There are comparatively few British species in the Banks collection, but even these are of interest, for most of them were given to him by the Duchess of Portland who appears to have collected regularly at Weymouth and passed duplicates on to Humphrey, Pulteney, Pennant, and many other workers on the British species. It is seldom that her name does not occur somewhere in the conchological works of the period. Thomas Pennant dedicated the fourth volume of his *British Zoology* to her in 1777, " as a grateful acknowledgement of the many favours conferred by Her Grace on her most obliged, and most obedient humble servant ". Richard Pulteney, some years later, continually refers to the Portland cabinet in his *Dorsetshire Catalogue* (1799), noting many species given to him by the Duchess.

Modiolus adriaticus Lamarck	*Mytilus ruber* Sol. MSS.
Mytilus edulis Linné	*Mytilus edulis* with the small crab.

This specimen of *M. edulis* still contains the remains of the small crab (Pinnotheres sp.) noted on the label (dated 1780).

Mytilus edulis Linné	*Near Deptford.*
Musculus discors (Linné)	*Mytilus discors testa minor albida.* Weymouth and Cornwall.

The last named species is the real Linnean *M. discors,* so frequently confused by eighteenth-century authors with the large *M. impactus* already referred to above (p. 98).

Chlamys opercularis (Linné)	*Ostrea glabra.* Anglia.
Chlamys tigrinus (Müller)	*Ostrea obsoletus* Sol. MSS. Anglia.
Cyprina islandica (Linné)	*Venus islandica.* Weymouth.
Dosinia exoleta (Linné)	*Venus lincta* Sol. MSS. Anglia, Weymouth.
Venus verrucosa Linné	*Venus verrucosa.*
Venus casina (Linné) Juvenile	*Venus* * * *
V. (Timoclea) ovata (Pennant)	*Venus crenulata* Sol. MSS. Anglia, Weymouth.
V. (Clausinella) fasciata (Da Costa)	*Venus* * * * Anglia and Ireland.
V. (Chamelea) striatula (Da Costa)	*Venus gallina.* Weymouth.
Paphia aurea (Gmelin)	*Venus nebulosa* Sol. MSS. Anglia, Weymouth.
Paphia virginea (Linné)	*Venus virginea* L. Anglia, Weymouth.
Paphia pullastra (Linné)	*Venus decussata* vars. A, B. Weymouth.
Paphia decussata (Linné)	*V. decussata* L. Weymouth.
Irus irus (Linné)	*Donax irus* Linn. Oceano Anglicano prope. Weymouth.
Hiatella arctica (Linné)	*Venus arctica.* Anglia, Weymouth.
Hiatella gallicana (Lamarck)	*Mytilus rugosus.* Weymouth. Duchess of Portland.
Gastrochaena dubia (Pennant)	*Mytilus pholadeus* Sol. MSS. Weymouth. Duchess of Portland.

The four Banks specimens of *G. dubia,* the *Mya dubia* of Pennant, described in 1777, are in all probability part of the original set collected by the Duchess who was said by Pulteney to have been the first to observe its occurrence in England.

Trivia monacha (da Costa)	*Cypraea pediculus.* Weymouth.
Trivia arctica (Pulteney)	*Cypraea pediculus.* Weymouth.

Most of the earlier authors followed Linné in regarding the small British Cowries as varieties of his larger and deeply sulcated *C. pediculus* of the West Indies. Both Pennant (1777, p. 115) and Pulteney (1799, p. 39) retained the Linnean *pediculus*, but the latter accepted Solander's name *arctica* (taken from the *Portland Catalogue*) for the unspotted British form, with the reservation that it might only be a variety in a depauperated state. Solander evidently intended his *C. arctica* to apply to both spotted and unspotted shells, marking his manuscript accordingly (var. A. *testa maculis*, var. B, *testa immaculata*). Montagu (1803, p. 200) followed Pulteney in allowing Solander's *arctica* for the spotless form, but in his *Supplement* of 1808 (p. 88) he reconsidered the matter, choosing the name *europaea* for both spotted and unspotted forms, and saying without hesitation that they were quite different from the deeply sulcated foreign *C. pediculus* L. E. M. da Costa, however, had already called both forms *C. monacha* (1778, p. 33), and this name was given preference to Montagu's *europaea* by Winckworth in his revised list of the British Marine Mollusca (1932), where the spotted and unspotted shells appear as subspecies of *Trivia monacha* (da Costa) (184*a*, T. monacha *monacha*, 184*b*, T. monacha *arctica*). Winckworth's decision to separate the two forms was based on the researches of Peile (1925) who found the radulae to be distinct. The later work of Lebour (1933) demonstrated that the veligers of the two forms differed sufficiently to justify the recognition of two distinct species.

In fairness to the earlier authors and collectors who were frequently under the impression that the true *C. pediculus* occurred on European shores, it should be mentioned that dead but fresh-looking shells of this West Indian species are still occasionally seen on the British coast. Quite recently specimens were obtained from a rock-pool at Pembroke. Such occurrences are well-known and can usually be traced to ship's ballast or the discarding of unwanted shell collections.

Neptunea antiqua (Linné)	*Murex antiquus.*
Sipho gracilis (da Costa)	— — —
Ocinebra erinacea (Linné)	*Murex erinaceus.*
Hoeminia hydatis (Linné)	*Bulla* * * *
Cylichna cylindracea (Pennant)	*Bulla* * * * Weymouth. Duchess of Portland.
Philene aperta (Linné)	Oceano Anglicano.
Scaphander lignaria (Linné)	*Bulla lignaria.* Weymouth. Duchess of Portland.

The presence of *S. lignaria* in the Banks collection (ex. Portland) is a particularly agreeable record with which to terminate this descriptive catalogue; for although the shell had been quite well known to authors since very early times, the proper function of the remarkable gizzard plates does not appear to have been noted until about 1780. A specimen of the gizzard of *S. lignaria* (with a small shell in process of digestion wedged between the plates) was sent to the Duchess of Portland by a correspondent at Weymouth, and this was in her collection in 1786, appearing as item No. 2219 in the sale catalogue, " A large specimen of Bulla lignaria, *L.* with its stomach or gizzard taken out of it, *a late and curious discovery* ". It was bought by Humphrey on behalf of Isaac Swainson who allowed him to describe it in a paper read before the Linnean Society in 1789, and eventually published in the *Transactions* with some excellent figures in 1794 (vol. **2**, p. 15, tab. 2).

Specimens of *S. lignaria* from Weymouth complete with gizzard thereafter became part of Humphrey's stock-in-trade, and were usually priced at one guinea (*vide* Cracherode priced MSS. catalogue *c.* 1799).

In concluding this account of the Banks shell collection, it must be stated that after such a long interval of time it has been necessary, here and there, to use corroborative evidence from other sources than the collection itself; but only the most reliable evidence has been drawn upon, and supposition has been kept to a minimum. Although a portion of the Banks collection is missing, enough remains to give a fairly comprehensive idea of the contribution to knowledge of the mollusca made by Solander and his contemporaries, during the eventful years of the second half of the eighteenth century.

7. REFERENCES

Allen, J. 1950. *Australian Shells.* xix + 470 pp.; 112 text-figs., 86 pls. Melbourne.

Banks, Sir J. *Journal during Captain Cook's First Voyage in H.M.S. " Endeavour " in* 1768–71. Ed. by Sir Joseph D. Hooker, 1896. lii + 466 pp.; 2 portraits; 5 charts. London.

Beaglehole, J. C. 1947. *The Exploration of the Pacific.* xv + 411 pp.; 4 maps. (2nd edit.). London.

Brander, G. 1766. *Fossilia Hantoniensia collecta et in Museo Britannico deposita, etc.* vi + 43 pp.; 9 pls. Londini. 4°.

British Museum (Natural History) 1906. *The History of the Collections contained in the Natural History Departments of the British Museum,* **2** : 782 pp. *Birds* by R. B. Sharpe: 79–515; *Mollusca* by E. A. Smith: 701–30. London.

—— 1912. *Ibid.*, **2**; *Appendix.* 109 pp. London.

Broderip, W. J., & Sowerby, G. B. 1832. New species of the Genus *Chiton. Proc. Comm. Sci. Zool. Soc.* (16): 25–28.

Bruguière, J. G. 1792. *Encyclopédie Méthodique.* Histoire Naturelle des Vers. *Conus*: 586–757.

Bullock, W. 1812. *A Companion to Mr. Bullock's London Museum and Pantherion.* 12th ed. xii + 57 + 136 pp.; 31 pls. London.

—— 1819. *Catalogue . . . of the Roman Gallery . . . and the London Museum of Natural History . . . which will be sold . . . by Mr. Bullock, etc.* 5 parts; v + 165 pp. London.

Cameron, H. C. 1952. *Sir Joseph Banks, K.B., P.R.S.* The Autocrat of the Philosophers. xx + 341 pp.; frontispiece and 9 pls. London.

Clench, W. J. 1942. The Genera Dosinia, Macrocallista and Amiantis in the Western Atlantic. *Johnsonia,* **1**, No. 3, pp. 1–8; 6 pls. Cambridge, Mass. 4°.

Cook, J. 1784. *A Voyage to the Pacific Ocean . . . for making discoveries in the Northern Hemisphere . . . in* 1776–1780 *. . . Vol. I and II by Capt. J. Cook, Vol. III by Capt. J. King, etc.* 3 vols. London. 4° and fol.

—— *Journal during the First Voyage round the World in H.M. Bark " Endeavour "* 1768–71. A literal transcription of the original MSS. with notes and introduction. Ed. by Captain W. J. L. Wharton, R.N., 1893. lvi + 400 pp.; 4 pls.; 1 portrait; 7 maps. London. 4°.

Costa, E. M. da. 1778. *Historia Naturalis Testaceorum Britanniae, or The British Conchology containing the descriptions . . . of the Shells of Great Britain and Ireland . . . in English and French.* xii + 254 + vi [3] pp.; 17 pls. London. 4°.

Dakin, W. J. 1953. *Australian Seashores.* xii + 372 pp.; 23 text-figs.; 100 pls. London.

Dall, W. H. 1902. Synopsis of the Family Veneridae and of the North American recent species. *Proc. U.S. Nat. Mus.*, **26** : 335–412, pls. xii–xvi.

—— 1921. Species named in the Portland Catalogue. I. American, II. Foreign species. *Nautilus*, **34** : Pt. 3, 97–100; Pt. 4, 124–132.

Dautzenberg, Ph. 1937. Résultats Scientifiques du Voyage aux Indes Orientales Néerlandaises. Gastéropodes Marins. 3. Famille Conidae. *Mem. Mus. R. d'Hist. nat. de Belgique*, **2**, fasc. 18.

Dawson, W. R. 1949. Some Eighteenth Century Conchologists. *J. of Conch.*, **23** : 44–47.

Dewes, S. (N. D.) *Mrs. Delany.* xii + 320 pp.; 8 portraits. London.

Dillwyn, L. W. 1817. *A Descriptive Catalogue of Recent Shells.* 2 vols., xii + 1092 pp. London.

—— 1823. *An Index to the Historia Conchyliorum of Lister, with . . . occasional remarks.* xiii + 48 pp. Oxford. fol.

Dobson, A. 1923. *Rosalba's Journal and other papers.* 304 pp.: 6 pls. Oxford.

Dodge, H. 1952. A Historical Review of the Mollusks of Linnaeus. Part 1. the Classes Loricata and Pelecypoda. *Bull. Amer. Mus. Nat. Hist.*, **100** : 1–264.

—— 1953. A Historical Review of the Mollusks of Linnaeus. Part 2. The Classes Cephalopoda and the Genera *Conus* and *Cypraea*. *Ibid.*, **103** : 1–134.

Donovan, E. 1804. *The Natural History of British Shells including figures and . . . scientific . . . observations on each.* 5 vols. Col. pls. London.

—— 1822. *The Naturalist's Repository.* 5 vols. Col. pls. London.

Edwards, E. 1870. *Lives of the founders of the British Museum.* 1570–1870. x + 780 pp.; 13 text illus. London.

Ellis, J., & Solander, D. C. 1786. *The Natural History of . . . Zoophytes, collected . . . by J. Ellis . . . described by D. Solander, etc.* xii + 208 pp.; 63 pls. London. 4°.

Fox, H. 1919. *Dr. John Fothergill and His Friends.* xxiv–434 pp.; 13 pls. London.

Gage, A. T. 1938. *A History of the Linnean Society of London.* viii + 175 pp.; Frontispiece; 1 text-fig.; 11 pls. London. 4°.

Gmelin, J. F. 1790. *C. a Linné . . . Systema Naturae . . . Editio decima tertia . . . cura J. F. Gmelin*, 1788–93, **1** (6) : 3021–3910. Lipsiae.

Gray, J. E. 1825. A List and Descriptions of some Species of Shells not taken notice of by Lamarck. *Ann. Phil.*, **25** : 408.

Hanley, S. 1855. *Ipsa Linnaei Conchylia. The Shells of Linnaeus, determined from his Manuscripts and Collection . . . also, an exact reprint of the Vermes Testacea of the "Systema Naturae" and "Mantissa".* 556 pp.; 6 pls. London.

—— 1856. *Index Testaceologicus, An Illustrated Catalogue of British and Foreign Shells . . . by W. Wood . . . Revised Edition.* xx–234 pp.; 38 + 8 pls. London.

Hermann, J. 1782. Zweeter Brief über einige Conchylien au den Herausgeber. *Der Naturforscher.*, **17** : 126–152, Tab. III.

Humphrey, G. 1779. *Museum Humfredianum: a Catalogue of the . . . Museum of Mr. G. Humphrey*, etc., 168 pp. London.

—— 1786. *A Catalogue of the Portland Museum . . . which will be Sold by Auction . . . on 24th April, 1786, and the Thirty-seven following days*, etc. vii + 194 pp.; 1 pl. London. 4°.

—— 1794. Account of the Gizzard of . . . Bulla lignaria. *Trans. Linn. Soc. London.*, **2** : 15–18; 1 pl.

—— 1797. *Museum Calonnianum, specification of the Various articles which compose the . . . Museum of Natural History collected by M. de Calonne in France, etc.* (Part 1. viii + 84 pp.) London.

Iredale, T. 1916. Solander as a conchologist. *Proc. Mal. Soc.*, **12** : 85–93.

IREDALE, T. 1935. Australian Cowries. Part I. *The Australian Zoologist*, **8** (2) : 96–135; 2 pls.

—— 1939*a*. Australian Cowries. Part II. *Ibid.*, **9** (3) : 297–323; 3 pls.

—— 1939*b*. Great Barrier Reef Expedition 1928–29, Scientific Reports, **5**, No. 6. *Mollusca* Part 1, 209–425; 7 pls., 1 map. British Museum (Natural History). London. 4°.

—— 1948. Bullock Museum. *The Australian Zoologist*, **11** : 233–237; 1 text-fig.

JACKSON, B. D. 1888. History of the Linnean Collections. *Proc. Linn. Soc.*, 1887–88; 18–34.

JACKSON, J. W. 1917. Shells as evidence of the migrations of early culture. *Pub. Univ. Manchester*, **112**, xxviii + 216 pp.; 13 text-figs.

JEFFREYS, J. G. 1862–69. *British Conchology*. 5 vols., col. illus. London.

KEEP, J. 1935. *West Coast Shells, A Description of the Principal . . . Mollusks of the United States . . . found West of the Sierra*. Revised ed. by J. L. Bailey, Jr. xi + 350 pp.; 334 text-figs. California.

LASKEY, J. 1813. *A General Account of the Hunterian Museum, Glasgow, including Historical and Scientific notices of various objects of . . . Natural History, etc.* v + 133 pp. Glasgow.

LEACH, W. E. 1814–17. *The Zoological Miscellany; being Descriptions of New, or Interesting Animals . . . illustrated with coloured figures by R. P. Nodder*. 3 vols. London. 4°.

LEBOUR, M. V. 1933. The British species of Trivia: *T. arctica* and *T. monacha*. *J. Mar. biol. Ass. U.K.*, **18** : 477–484.

LEVER, SIR A. 1806. *Catalogue of the Leverian Museum*. 7 parts and Appendix. 296 + 35 pp. London.

LINNAEUS, C. 1758. *Systema Naturae . . . Editio decima, reformata, Tom.* 1. 824 pp. Holmiae.

—— 1767. *Systema Naturae . . . Editio duodecima reformata*, Tom. 1. part 2; 533–1327 [36]. Holmiae.

LISTER, M. 1685–92 (?). *Historia sive Synopsis methodicae Conchyliorum . . . liber . . . S. et A. Lister figuras pin.* 6 pt.; 1057 pls. Londini. fol.

MARTINI, F., & CHEMNITZ, J. 1769–1795. *Neues Systematisches Conchylien Cabinet*. 11 vols. illust. col. Nurnburg. 4°.

MARTYN, T. 1784–92. *The Universal Conchologist, exhibiting the figure of every known shell . . . drawn and painted . . . with a new systematic arrangement*. 4 vols. 160 col. pls.; English titles. London. fol.

MATON, G., & RACKETT, T. 1804. A Descriptive Catalogue of the British Testacea. *Trans. Linn. Soc. London*, **8** : 17–250; 6 col. pls.

MONTAGU, G. 1803–1808. *Testacea Britannica, or Natural History of Shells, Marine, Land and Freshwater*, etc., 2 vols. and Supplement. Col. pls. London. 4°.

MONTFORT, P. DE. 1808–10. *Conchyliologie systematique et classification methodique des Coquilles*. 2 Tom. illus. Paris.

MUIR, J. R. 1939. *Captain Cook*. 310 pp.; 15 pls.; 1 map. London.

MULLENS, W. H. 1917. William Bullock's London Museum. *Museums Journal*, **17** : 51, 132, 180; 2 pls.

PARKINSON, S. 1784. *A Journal of a Voyage to the South Seas, in H.M.S. "Endeavour" . . . [Ed. 2.] To which is now added, Remarks on the Preface, by . . . J. Fothergill . . . and an Appendix*. xxiii + lxxi + 353 pp.; portrait; 27 pls.; 2 maps. London. 4°.

PEILE, A. J. 1925. The differentiation as species of the two forms of British *Trivia*. *Proc. Mal. Soc. London*, **16** : 195–197 : 1 text-fig.

PENNANT, T. 1777. *British Zoology*. 4 vols. Illus. London. 4°.

POWELL, A. W. B. 1946. *The Shellfish of New Zealand*. Ed. 2. 106 pp.; 26 pls. Auckland.

PULTENEY, R. 1799. *Catalogues of the Birds, Shells and some of the more rare Plants of Dorsetshire*. 92 pp. London. fol.

—— 1813. *Second ed. with additions by Rev. T. Rackett*. iv + 110 pp.; 24 pls.; portrait. London. fol.

REEVE, L. 1841. *Conchologia Systematica or Complete System of Conchology; in which the Lepades and Conchiferous Mollusca are described, etc.* 300 col. pls. 2 vols. London. 4°.

RICKETTS, E., & CALVIN, J. 1948. *Between Pacific Tides.* xxvii + 365 pp.; 129 figs.; 46 pls. California.

ROGERS, J. E. 1951. *The Shell Book.* xvi–503 pp.; 95 pls. (Ed. 2). Boston. 4°.

SCHILDER, F. A., & SCHILDER, M. 1938–39. Prodrome of a Monograph on living Cypraedidae. *Proc. Mal. Soc. London,* **23**: 119–231; text-fig. and maps.

SHARPE, R. B. 1906. *See* British Museum (Natural History).

SHERBORN, C. D. 1905. Note on the "Museum Humfredianum" 1779. *Ann. & Mag.,* Nat. Hist. Ser. 7, **16**: 262–264.

SMITH, E. A. 1906. *See* British Museum (Natural History).

SMITH, SIR J. E. 1821. *A Selection of the Correspondence of Linnaeus and other Naturalists, from the Original Manuscripts.* 2 vols. 10 pls. London.

SMITH, MAXWELL. 1940. *World Wide Sea Shells.* xviii + 139 pp.; illus. Florida. 4°.

SOWERBY, G. B. 1825. *A Catalogue of the Shells . . . of the late Earl of Tankerville . . . with an Appendix.* vii + 92 + xxxiv pp.; 8 col. pls. London.

—— 1847–87. *Thesaurus Conchyliorum or Monographs of Genera of Shells. Ed. by G. B. Sowerby, Jun.* 5 vols.; illus. London. 4°.

SUTER, H. 1913. *Manual of the New Zealand Mollusca.* xxiii + 1120 pp.; 4 text-figs. Wellington.

—— 1915. Atlas to the above. 71 pls. Wellington. 4°.

SWAINSON, W. 1820–23. *Zoological Illustrations or Original Figures and Descriptions of Rare, or Interesting Animals, etc.,* Ser. 1. 3 vols. 182 col. pls. London.

—— 1840. *A Treatise on Malacology; or the Natural Classification of Shells and Shell-fish.* (*Lardner's Cabinet cyclopaedia,* vol. **127**), viii + 419 pp.; 130 text-figs. Engr. title. London.

THIELE, J. 1931–1935. *Handbuch der Systematischen Weichtierkunde.* 2 Bde. vi + 778; v + 779–1154 pp.; illust. Jena.

TOMLIN, J. R. LE B. 1937. Catalogue of Recent and Fossil Cones. *Proc. Mal. Soc. London.* **22**: 205–330.

TURTON, W. 1819. *A Conchological Dictionary of the British Islands.* xxvii + 272 pp.; 28 col. pls. London.

WILKINS, G. L. 1952. The Shell Collections of Sir Hans Sloane, Bart. *J. Conch.,* **23**: 247–259; 2 pls.

—— 1953*a*. Notes from the British Museum. 1. *Pinna. Proc. Mal. Soc. London,* **30**: 23–29; 1 pl.

—— 1953*b*. A Catalogue and Historical Account of the Sloane Shell Collection. *Bull. Brit. Mus.* (*Nat. Hist.*) *Historical Series.* **1**, No. 1: 1–47; 12 pls.

WINCKWORTH, R. 1932. The British Marine Mollusca. *J. of Conch.,* **19**: 211–252; 3 text-figs.

WOOD, W. 1828. *Index Testaceologicus; or a Catalogue of Shells British and Foreign . . . Supplement.* iv + 59 pp.; 8 col. pls. London.

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BRITISH MUSEUM

EXPLANATION OF PLATES

(With the exception of figure 1, all figures are actual size)

PLATE 14

FIG. 1. Complete drawer of specimens from the Banks collection, containing *Cypraea* and *Bulla.*
FIG. 2. Banks reversible metal container.
FIG. 3. Original Linnean metal container.

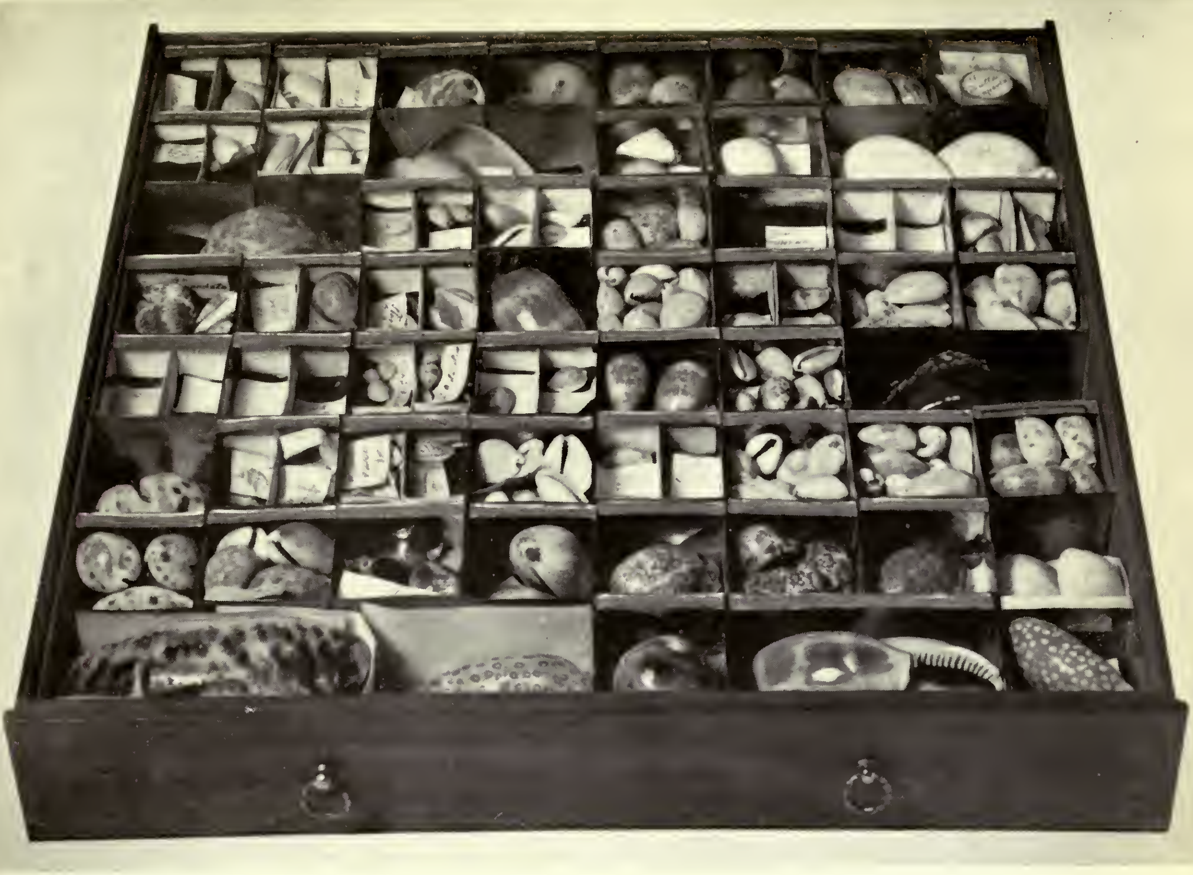

Fig. 1.

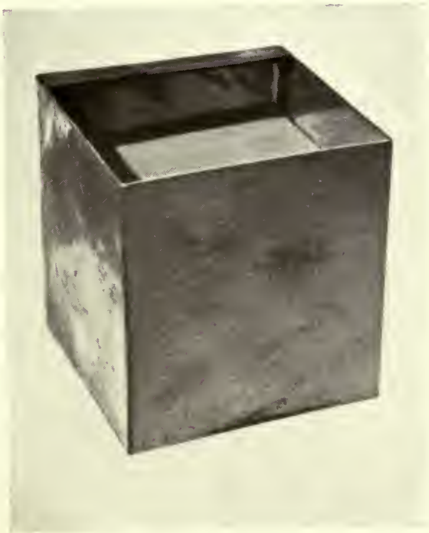

Fig. 2.

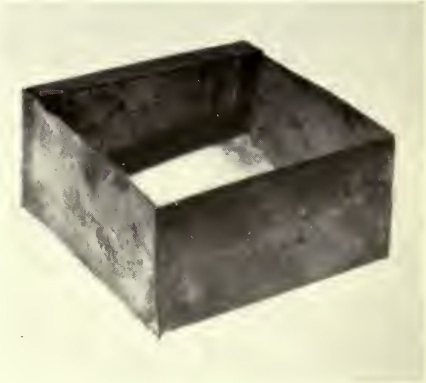

Fig. 3.

PLATE 15

FIG. 4. *Musculus impactus* (Hermann), New Zealand.

FIG. 5. Solander's pencilled locality label.

FIG. 6. Cluster of *M. impactus,* still enclosed in the byssal threads.

FIG. 7. Manuscript description, finally attributed to *Mytilus discors* L.

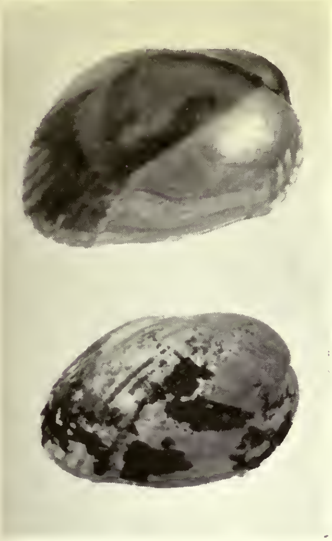

FIG. 4.

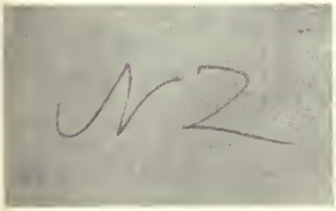

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FIG. 5.

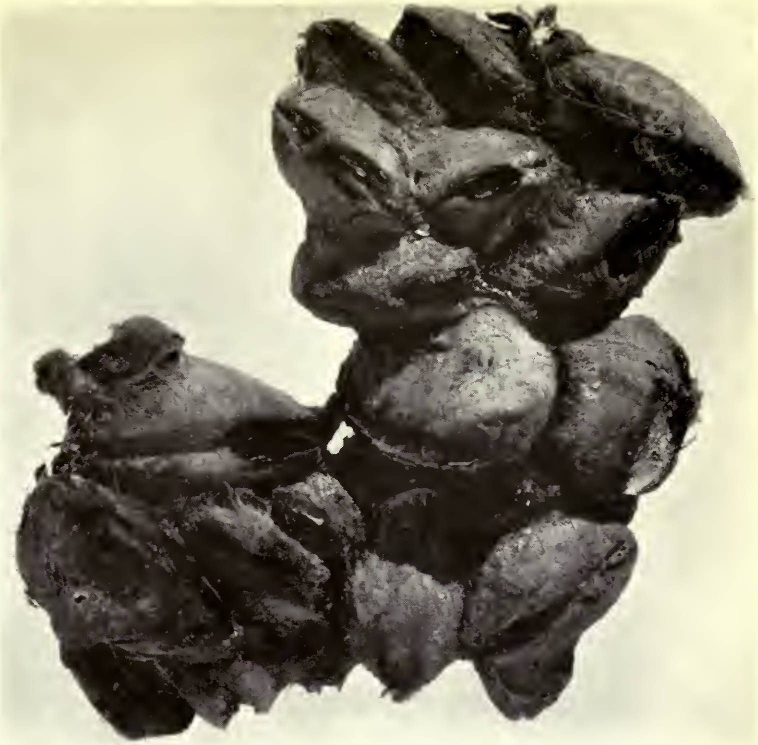
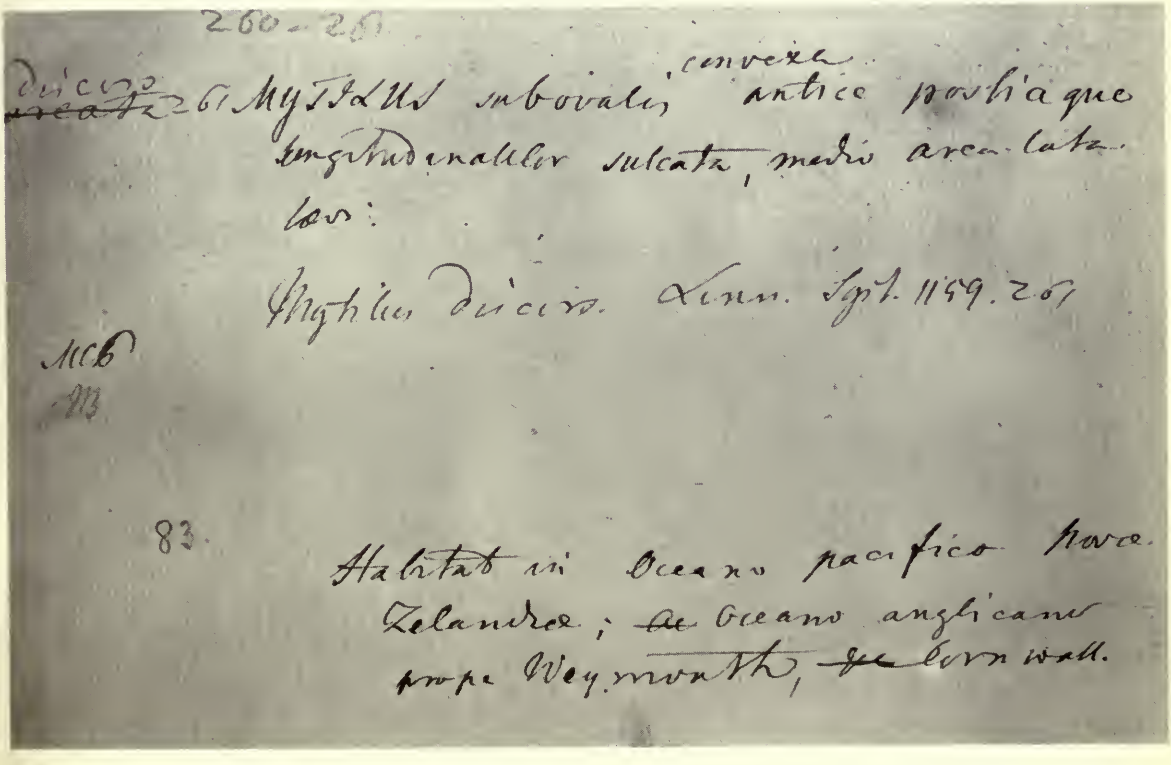


FIG. 6.



260–261

discors ~~areata~~ 261 MYTILUS subovalis convexa antice posticeque
longitudinaliter sulcata, medio area lata-
levi:

Mytilus discors. Linn. Syst. 1159. 261

MCB
M

83.

Habitat in Oceano pacifico Novae
Zelandiae; ~~ac~~ Oceano anglicano
prope Weymouth, ~~ac~~ Cornwall.

FIG. 7.

PLATE 16

FIG. 8. *Circe scripta* (L.).

FIG. 9. *Buccinulum multilineum* Powell.

FIG. 10. *Batissa triquetra* Deshayes, marked Nova Cambria.

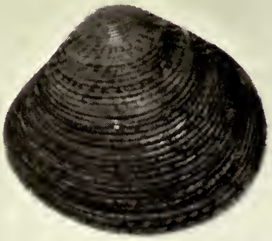
FIG. 11. *Pyrazus ebeninus* (Brug.), with *Saxostrea commercialis* attached.

FIG. 12. *Colus colus* (L.).

FIG. 13. *Cymatium chlorostoma* (Lamk.).

FIG. 14. *Pinctada reeveana* (Dunker).

FIG. 15. *Brachidontes hirsutus* (Lamk.).



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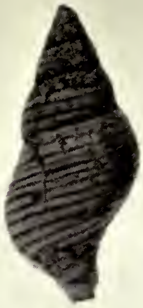

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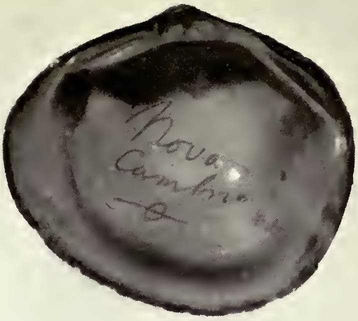
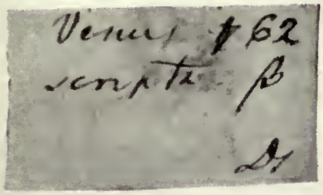
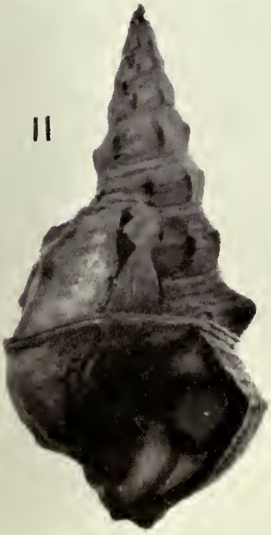

Nova
Cambria

10



Venus 162
scripta β
D.



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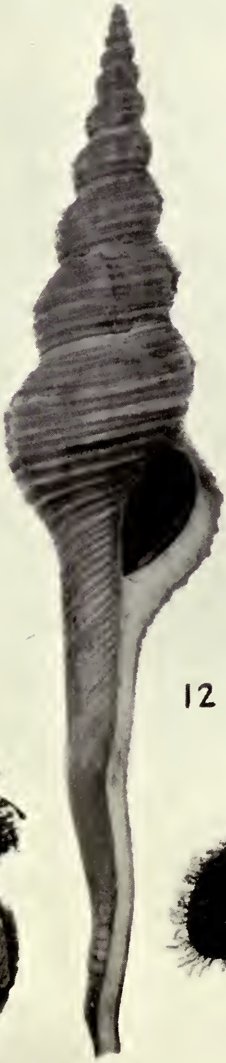
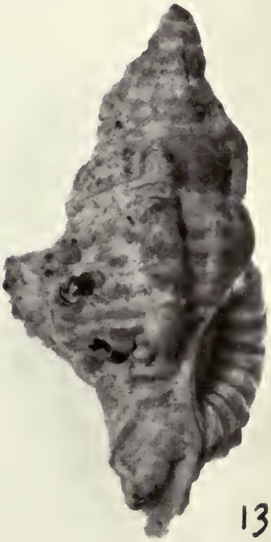
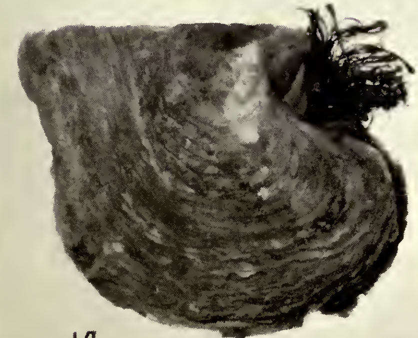


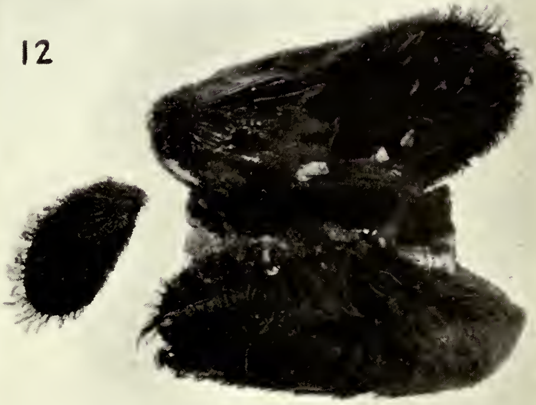
12



13



14



15

PLATE 17

FIG. 16. Lectotype of *Macrocallista nimbosa* [Humphrey], with Solander's label.

FIG. 16*a*, *b*. Smaller specimen of *M. nimbosa* marked Antigua, W.I.

FIG. 17. Manuscript description of *Venus nimbosa*.

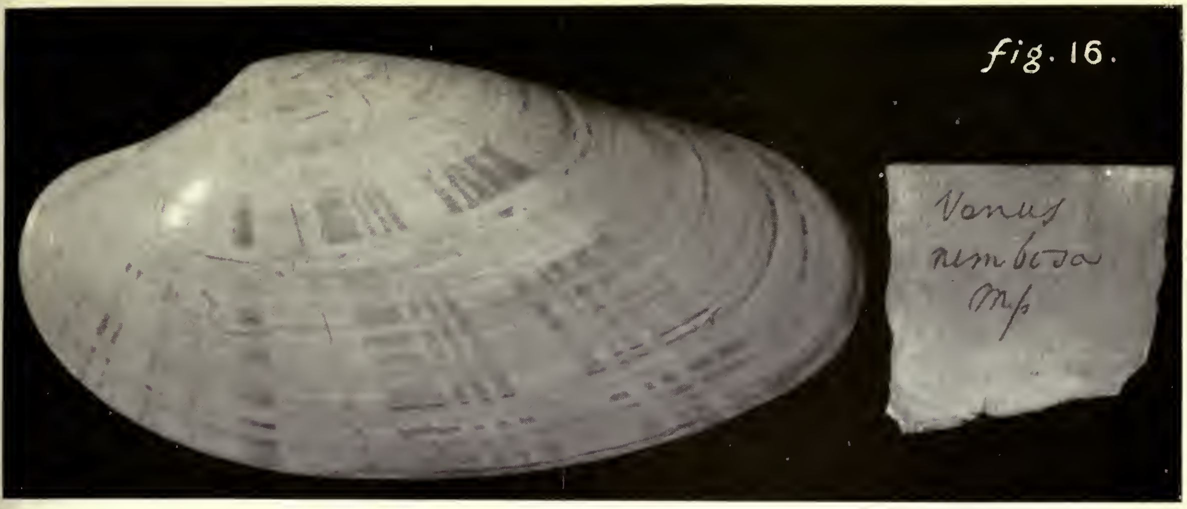
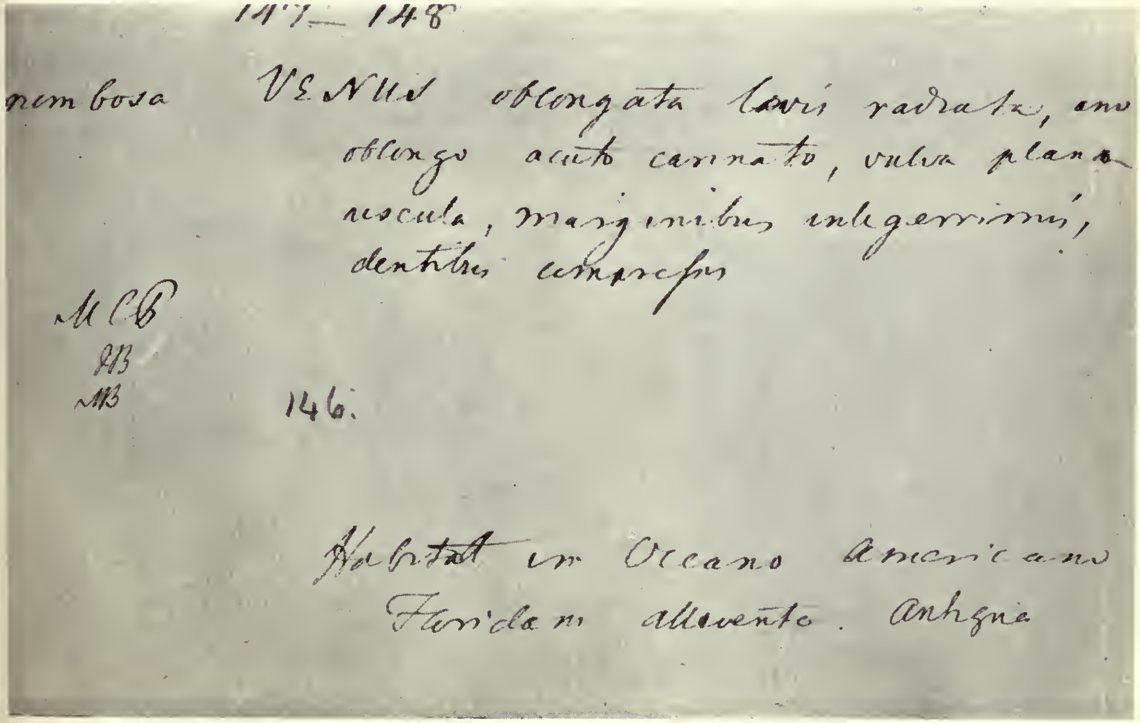


fig. 16.
Venus
nimbosa
Ms


147 — 148

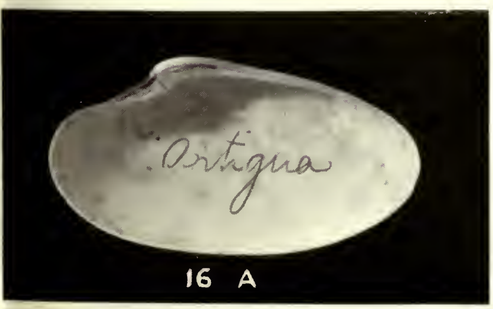
nimbosa VENUS oblongata laevi radiata, ano oblongo acuto carinato, vulva planiuscula, marginibus integerrimis, dentibus compressis

MCB
BB
MB

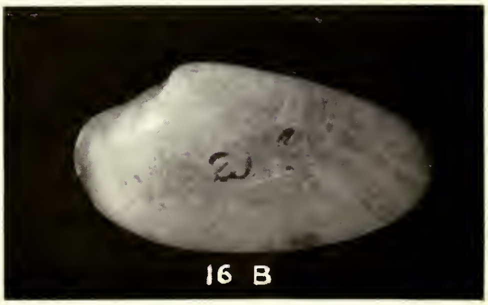
146.

Habitat in Oceano Americano Floridam alluente. Antigua

FIG. 17



16 A



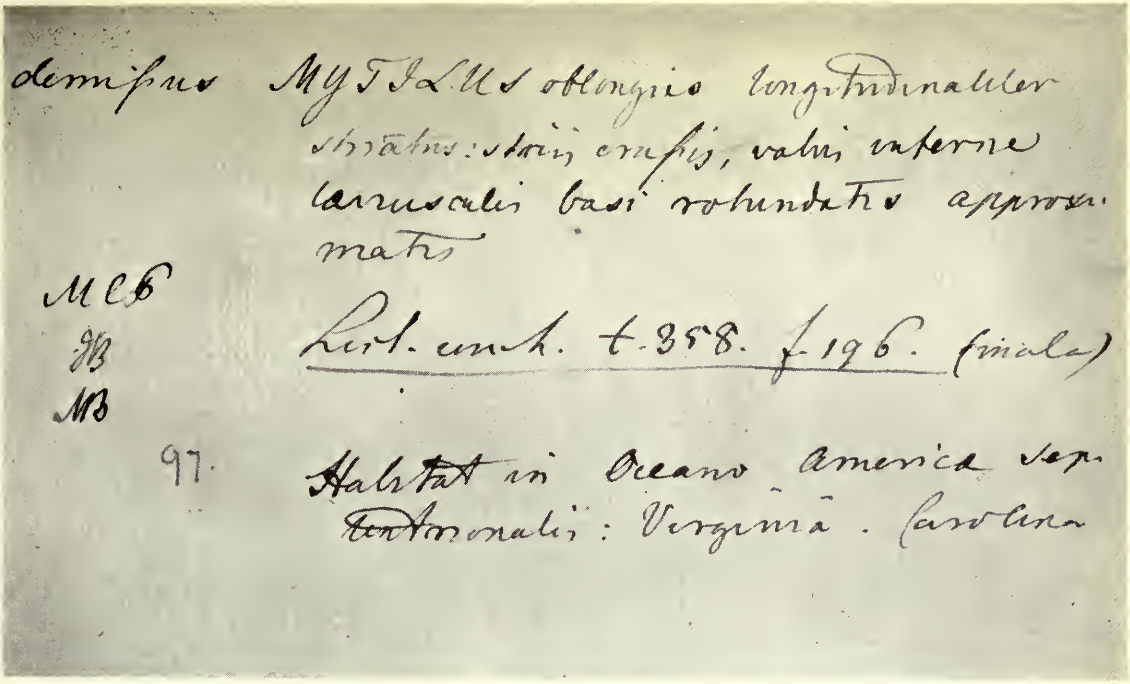
16 B

PLATE 18

FIG. 18. Solander's manuscript description of *Mytilus demissus*, with full set of locator initials.

FIG. 19. Lectotype of *Modiolus demissus* (Dillwyn), with Solander label.

FIG. 20*a*, *b*, *c*. *Anomalocardia flexuosa* (L), with the *Venus flexuosa* label altered to *Phryne* L.



demissus MYTILUS oblongus longitudinaliter
striatus: striis crassis, valvis interne
carunculatis basi rotundatis approxi-
matis

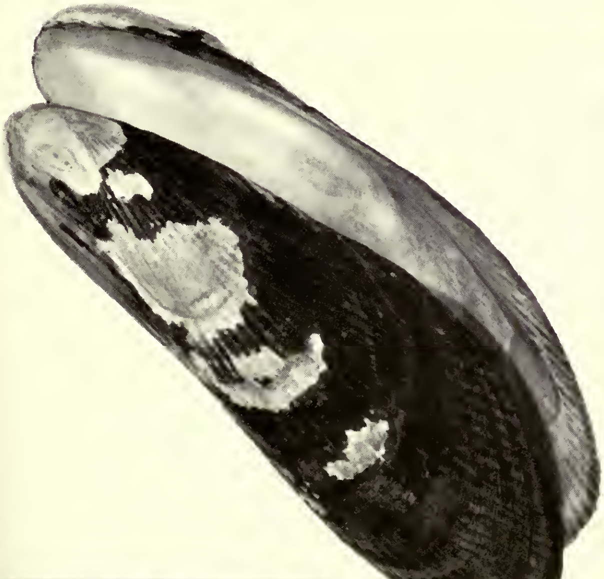
MCB
JB
MB

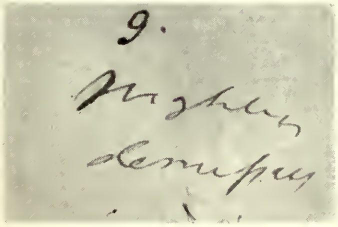
List. conch. t. 358. f. 196. ([illegible])

97.

Habitat in Oceano America sep-
tentrionali: Virginiâ. Carolina

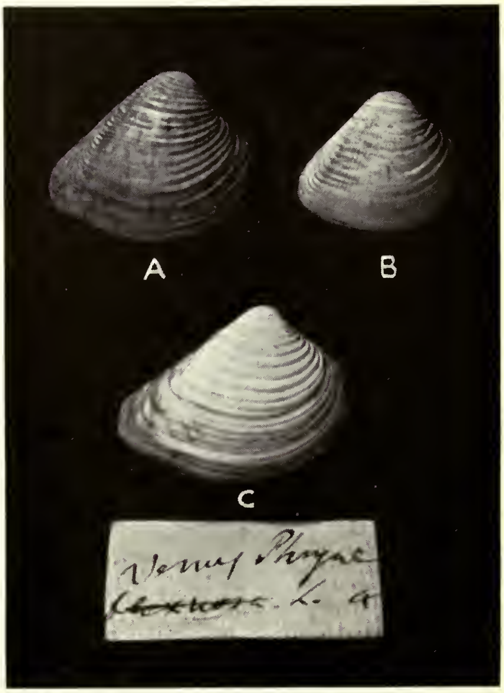
Fig. 18.





9.
Mytilus
demissus

Fig. 19.



Venus Phryne
~~[illegible]~~ L. a

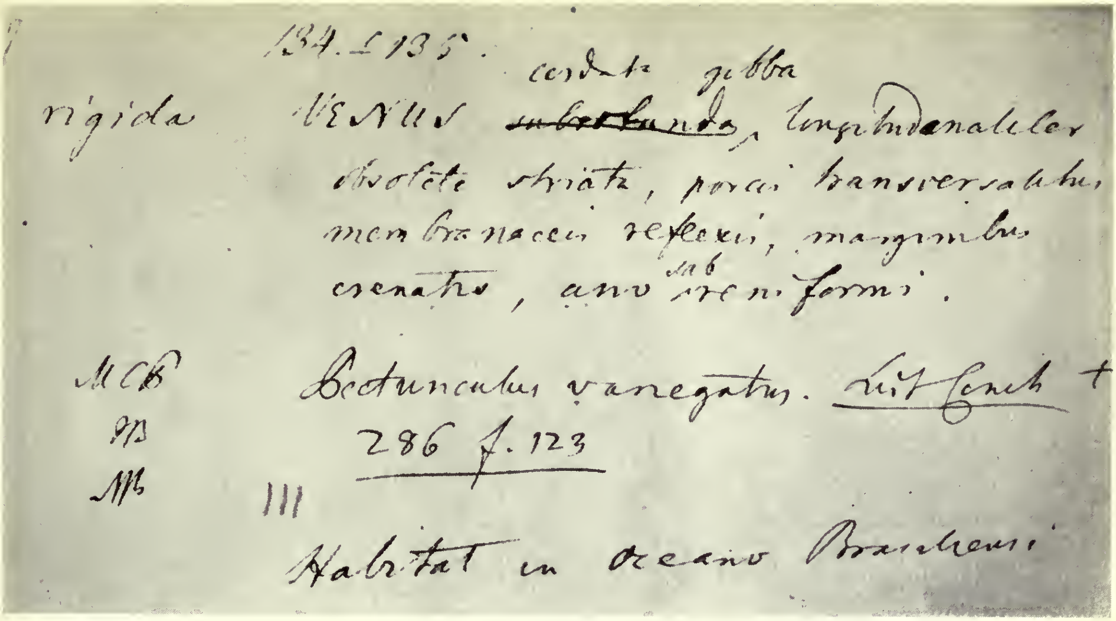
Fig. 20.

PLATE 19

FIG. 21. Solander's manuscript description of *Venus rigida*.

FIG. 22. Manuscript label found in the container.

FIG. 23–24. Lectotype of *Ventricola rigida* (Dillwyn), left valve marked with the type locality Rio de Janeiro.



134. & 135.

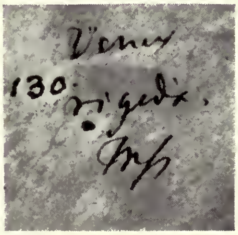
cordata gibba

rigida VENUS ~~subrotunda~~, longitudinaliter
obsolete striata, porcis transversalibus
membranaceis reflexis, marginibus
crenatis, ano sub reniformi.

M C B Pectunculus variegatus. List Conch. t.
M B 286 f. 123
M B III

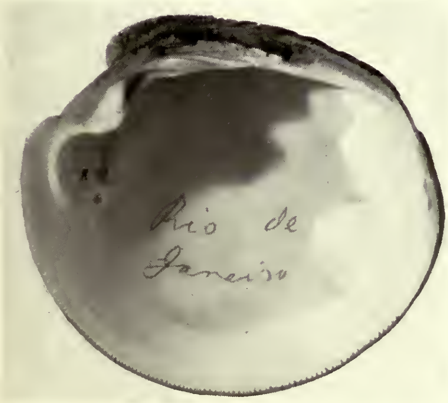
Habitat in oceano Brasiliensi

FIG. 21.



Venus
130. rigida.
M B

FIG. 22.



Rio de
Janeiro

FIG. 23.

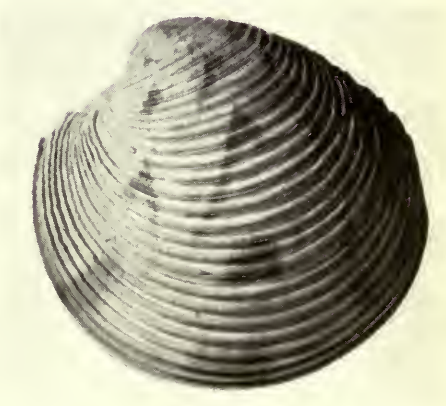


FIG. 24.

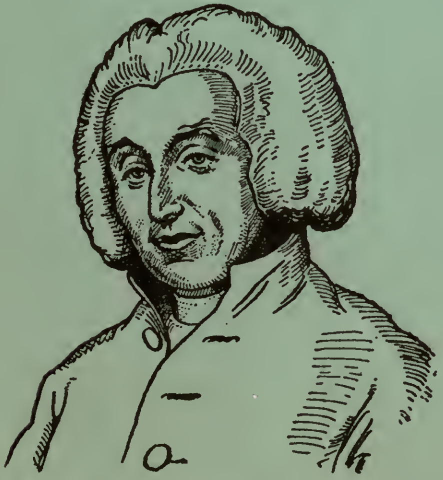
BRITISH MUSEUM NATURAL HISTORY
PRESENTED
14 FEB 1955

B M.
A.
o.

BRITISH MUSEUM
22 MAR 1957
NATURAL HISTORY

THE CRACHERODE SHELL COLLECTION

GUY L. WILKINS



Clayton Mordaunt Cracherode

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES Vol. 1 No. 4
LONDON : 1957

THE
CRACHERODE
SHELL COLLECTION

BY

GUY L. WILKINS

Pp. 121–184 ; *Pls.* 20–25

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES Vol. 1 No. 4
LONDON: 1957

THE BULLETIN OF THE BRITISH MUSEUM (NATURAL HISTORY), *instituted in* 1949, *is issued in five series corresponding to the Departments of the Museum, and an Historical series.*

Parts appear at irregular intervals as they become ready. Volumes will contain about three or four hundred pages, and will not necessarily be completed within one calendar year.

This paper is Vol. 1, *No.* 4 *of the Historical series.*

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THE CRACHERODE SHELL COLLECTION

By GUY L. WILKINS

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SYNOPSIS

The following account of the Cracherode shell collection is the last of a trilogy, in which attempts have been made to place upon record some historical data concerning the seventeenth and eighteenth century material still extant in the British Museum (Natural History). The collection was bequeathed to the Museum by the Revd. Clayton Mordaunt Cracherode in 1799, and was apparently the first to be added to the mollusca collections included in the vast private museum of Sir Hans Sloane (1666–1753), acquired by the Government for the foundation of a National Museum in 1753.

The existence of the Cracherode shells, which formed part of the first exhibited series, was only previously known from the very inadequate account given by Edgar A. Smith in 1906. A recent revaluation of the collection (long since incorporated into the large General collection), together with the existing manuscript catalogues and contemporary literature, has revealed that it is of considerable importance, since it contains a number of types and many figured specimens not previously recorded. This revaluation also clears up the hitherto mistaken identities of the original compilers of the Cracherode manuscript catalogues, and emphasizes the painstaking work of several officers of the British Museum during the formative years at Montague House, Bloomsbury.

No attempt has been made to compile a complete catalogue of the Cracherode collection, but lists have been prepared which include notes on the types and figured specimens. The plates show reproductions of pages from the various manuscript catalogues, and a limited number of the most important Cracherode specimens.

1. ORIGIN AND GROWTH OF THE COLLECTION

Natural productions formed only a part of the Cracherodean material bequeathed to the Museum in 1799, for (as will be shown later) Cracherode was mainly a bibliophile and print collector, and according to the dating of his manuscript catalogues a taste for natural history was acquired rather late in his life, from about 1788 onward. Nevertheless he was as particular in the selection of choice specimens of shells as of books and prints, the recorded prices paid for individual specimens being remarkably high in relation to present-day standards. Money, however, was no great object, for Cracherode had a comfortable and even ample income, and there is no doubt he fully intended to build up a library and collection worthy of our first National Museum, of which he was a most conscientious Trustee.

All that is vouchsafed to us in E. A. Smith's account noted above, under the year 1799, is that " In this year 794 specimens, still marked ' Mus. Cracherode ' were bequeathed by the Rev. Clayton Mordaunt Cracherode. A MS. catalogue of this collection is extant, and is of interest, as the specimens are marked with the prices paid for them to the well-known dealer George Humphrey ".

The importance of the Cracherode bequest to the Museum, however, should not be under-estimated, for it was the first addition to be made to the Sloane shells. These must have been still in much the same condition as they were left by their former owner when the Museum finally opened to the public in 1759. Admission to view the collections in Montague House was then, and for some years after, a long and tedious business. All but the largest specimens were kept in closed cabinets, and the smaller objects could only be examined by special appointment, and as only two officers could be provided to care for the whole of the natural history collections (Fletcher, 1904, p. 343), it is not surprising that working naturalists still continued to amass large private collections.

It has been shown elsewhere (Wilkins, 1953, p. 4) that Sir Hans Sloane added little or no material to his collections after 1747, and as far as can be ascertained no additional shells came to the Museum after his death until 1799.[1] Thus there was not a single conchological specimen in the National collection from all the new localities visited by Byron, Wallace and Cook in both hemispheres during the intervening years. Cracherode may have realized this, for his collection of shells contained examples of the many novelties brought from New Holland, New South Wales, New Zealand and North America by Cook and his contemporaries.

The paucity of material from these newly-discovered territories was partly due to lack of purchasing power during the Museum's earlier years, returning voyagers finding a more ready and speedy market for their curiosities among the legion of wealthy collectors then resident in the metropolis. Principal among these were the Duchess of Portland, Sir Joseph Banks, Dr. John Fothergill, William and John Hunter, Thomas Martyn and a host of others eager to purchase the strange and beautiful things brought back by the officers and men who accompanied Captain Cook on his three important voyages.

It has been remarked by previous authors, notably Bowdler Sharpe (1906, pp. 162 & 226) that even Sir Joseph Banks, who had so much of this new material at his disposal, allowed many of the natural history specimens to go to others at this time instead of to the British Museum, of which he was a Trustee and otherwise liberal donor. He occupied much the same position in the eyes of the vendors of specimens as did Sir Hans Sloane at the beginning of the century, and that they frequently applied to Banks first is clearly shown in the two following letters quoted by Smith (1911, p. 45) :

---

[1] There is the possibility that some shells came with the collections of the Royal Society, presented to the Museum in 1781, but none have so far been identified.

Daniel Solander to Joseph Banks

"London, August 21, 1775. My dear Sir, Mr. Harlock has sent to your house the plants I mentioned in my last letter. They are collected near Tranquebar by the Brethren of the Moravians, and as good specimens as I have seen . . . Several of the *Resolution's* men have called at your house to offer you their curiosities . . . Captain Cook has sent all his curiosities to my apartments at the Museum. All the shells are to go to Lord Bristol. Four casks have your name on them, and I understand they contain Birds and Fish, etc."

The second letter is couched in humble terms and came from a certain John Marr on board the *Resolution,* also dated 1775 :

"Begging pardon for my Boldness. I take this opportunity for acquainting your Honour of our arrival. After a long and tedious Voyage. Having met with extraordinary good success to the S'd and elsewhere, from many strange Isles I have procured your Honour a few curiosities as good as could be expected from a person of my capacity. Together with a small assortment of shells. Such as was esteem'd by pretended Judges of Shells. We have many experimental men in our ship that pretended to know . . . Depend upon it, Sir, I shall take special care of sending the above mention'd articles. When in order and an opportunity serves".

One suspects that the two formidable Forsters—father and son—who caused so much unpleasantness on Cook's second voyage may have been among the "experimental men" so scathingly referred to by Mr. Marr!

Thus for one reason or another none of the newly-discovered shells appear to have reached the Museum until 1799, after the dispersal of several large collections, each containing a fair proportion of these novelties. All Cracherode's shells were supplied to him by George Humphrey (?1745–1830), who during a long life disposed of many famous collections, the largest being those of Dr. John Fothergill (sold in 1781), the Duchess of Portland (1786), and the Prince of Calonne (1797). For each of these Humphrey prepared elaborate catalogues. He greatly increased his own stock from the last two of these sales, so that Portland and Calonne specimens, which included many from Australia and New Zealand, eventually found their way into the Cracherode collection, their origin being noted in the original manuscript catalogue. Humphrey's large and comprehensive stock enabled him to supply Cracherode with choice specimens at regular intervals, which he continued to do until shortly before the latter's death on 5th April, 1799.

2. GENERAL ACCOUNT AND PRESENT CONDITION OF THE COLLECTION

According to the two finely-written catalogues, the Cracherode collection of minerals, fossils, shells, corals and echinoderms was dealt with by the Museum authorities very shortly after its reception. Although the manuscript catalogues are not signed or dated, the paper used in the first is watermarked 1799 (minerals and fossils) and that in the second 1801 (recent shells, corals and echinoderms). The specimens were all numbered consecutively on the left hand side of the pages, each group commencing with number one, the numbers being written in ink on the corresponding specimens by the same hand. The numbers of fossil animals were preceded by the letters ZZ and fossil plants by AAA. A small pink disc bearing the full name " Cracherode ", " Crach " or " Cr." was at the same time attached to each, a method that seems to have applied to all groups entered in these two catalogues.

At the time of its receipt the collection of shells as listed contained 789 species or varieties (794 including five cirripedes). In most instances only a single good example of each kind was purchased by Cracherode, but occasionally two and sometimes three specimens of variable shells were included in the price charged by Humphrey, and catalogued under the same number. Thus there are approximately ninety-three extra shells to be added to the figure given above, making a grand total of 897 Cracherode shells, which together with the minerals (excluding gems) were valued for remittance of Legacy Tax in 1799 at £2,000 (*Synopsis*, Ed. 2, p. xxiv).

A recent search among the shells comprising the large General collection, with which they were incorporated during the 1820's, reveals that most of the Cracherode shells are still available and in reasonably good condition. All but the largest specimens are mounted on the standard neutral grey tablets, each marked " Mus. Crach " in the right hand bottom corner of the tablet (pl. 25, fig. 15). It is not yet known how Cracherode stored his specimens, but in the early days most of the smaller Museum specimens were kept in closed cabinets, and it was not until the beginning of the nineteenth century, when freer access to the collections became possible, that specimens began to be arranged in glass table cases for inspection by the general public.

The Cracherodean minerals were among the first to be exhibited in this way, together with the clearly written manuscript catalogue (Fletcher, 1094, p. 344), and there is ample evidence that a selection of the Cracherode shells was also exhibited at the same time. This evidence may be found in the second edition of the *Synopsis of the Contents of the British Museum,* issued in 1809, in which is given a general description of the contents of the thirty-eight rooms occupied by the collections in Montague House. Room IX was devoted to "Petrifactions and Shells " (pp. 27–31) ; sixteen cases round the walls of this room held an assortment of fossil bones, horns, corals and vegetables, with large shells, such as the Giant " Clamp " (*Tridacna*) placed on top of them. The floor space was occupied by five table cases containing various marine productions, table number one being devoted to the Cracherode shells. The summary of the contents of this case is so brief that it may well be quoted in full (pp. 28–30) :

(28)

ROOM IX.

Nat. Hist.
TABLE
I.

CRACHERODEAN COLLECTION OF SHELLS

In this table is deposited Mr. Cracherode's valuable collection of shells. Among these some of the most remarkable are the following :

Univalves

(*Division* 1.) A paper nautilus or argonaut shell, remarkable for the lightness of its fabric, and the elegance of its shape. It is inhabited by an animal not unlike a cuttle fish, by extending a pair of membranes adhering to the top of its longest arms, has the power of sailing on the surface of the sea.

Agate and zebra snails: one of these being polished appears as a beautiful rose colour.

(*Div.* 2.) Cone shells: a very rich assortment: among these are the admirals; the most remarkable of which are the orange admiral, and the cedo nulli: porcelain shells or cowries; the argus cowry; and the orange cowry, the

(29)

latter from New Holland; sea ears, which are usually of an obscure colour externally, but of a bright pearl-colour internally; when uncoated and polished the outside appears highly brilliant.

(*Div.* 3.) Snails properly so called, of various kinds; one of the most remarkable is the ringent or grinning snail, having the opening divided by tooth-like processes; the water pot.

(*Div.* 4.) The carrier trochus, covered with fragments of stone; the wentletrap; mitres; a music shell; the great oriental volute, or Voluta magnifica; the imperial volute; the orange flag volute, &c.

Bivalves

(*Div.* 5.) The Chinese heart-cockle; the yellow heart-cockle; the red anomia, &c.

(*Div.* 6.) The mother-of-pearl shell, in its young or small state; the hound's ear oyster; the cock's-comb oyster; many beautiful shells of the scallop kind.

(*Div.* 7.) Several varieties of the red and white thorny oysters; tellinae, &c.

(30)

ROOM IX.

Nat. Hist.

TABLE I.

Multivalves

Among the most remarkable of these are the barnacle shells, some of which often adhere to the bottom of ships and to other substances. One of the most elegant species occurs in this collection, forming a group of numerous individuals intermixed with small muscles, and is called the horn of plenty barnacle, or Lepas cornucopiae.

(*Div.* 8.) Various beautiful specimens of corals, echini, &c.; a pink pearl; a Medusa's head, and other star-fish, &c.

It is here to be observed, that the more general and scientific, but less splendid collection of shells belonging to the Museum, is deposited in drawers in the imposts round the room.

It will be noticed from this very brief itinerary that with one exception only vernacular names were as yet used to describe the exhibited specimens. Nevertheless a number of items particularly mentioned can readily be distinguished as those still in existence. Among these are the polished zebra snail, a large artificially-polished *Achatina panthera* (Crach. 83); the orange cowry, the well-known and still valuable *Cypraea aurantium* (Crach. 204); the sea ears or *Haliotis*, including Leach's type specimens of *H. cracherodii* and *H. rubra* (Crach. 237 & 233), and polished examples of *Haliotis irus* and *naevosa* of which " the outside appears highly brilliant " (Crach. 231 & 232); the ringent or grinning snail *Anostoma octodentatum* (Crach. 269); the thorny woodcock *Murex scolopax* (Crach. 296); the carrier trochus " covered with fragments of stone" *Xenophora conchyliophora* (Crach. 444) and the great oriental volute *Voluta magnifica* (Crach. 47).

While it is unlikely that the Cracherode specimens were mounted and labelled on tablets at this early period, some of the shells (particularly the bivalves) had the Linnean and Gmelin names written boldly upon them in the hand of the compiler of the Museum catalogue (Pl. 21, fig. 3*a*, *b*, *c*), now known to be Dr. Edward Whitaker Gray (1748–1806). At the time of the second edition of the *Synopsis* (1809) and for a year or two afterwards, no more than fifteen people could be conducted through the rooms of the Museum at one time, and as only a few minutes was allowed in each, individual labelling was scarcely necessary, the summary of each room printed in the *Synopsis* being considered sufficient "for persons who take the usual cursory view of the Museum". But manuscript catalogues similar to those compiled by E. W. Gray for the Cracherode minerals and shells were apparently in preparation for the use of students in all departments (*Synopsis*, ed. 2, p. xxxiv).

The mollusca collections were certainly mounted and labelled and in fairly good order by 1828, for by that time William Wood was able to state in the *Supplement* to his *Index Testaceologicus* published in May, 1828 (Preface, p. iii) that "the majority of the shells have been figured from specimens in the British Museum, and the names attached to them in that collection have been adopted".

That the Museum collections were in good order, and even contained recently-named and as yet unfigured specimens by 1828, indicates that a great deal of work had been done in a comparatively short space of time, and that they had already assumed an entirely different aspect from the days when the Cracherode shells formed the only exhibited series. Attempts had certainly been made to arrange the Cracherode collection according to Lamarck by Dr. Leach, who "cast aside contemptuously the fetters of the Linnean School" (Johnston, 1850, p. 555); but much of the older Museum material "disposed in drawers in the imposts round the room", still remained to be sorted. Leach was mainly an entomologist and often became absorbed in "many and various other similar interminable investigations" (Swainson 1840, p. 239), so that he probably did little more than start the rearrangement of the collections before his illness and subsequent retirement in 1822.

52

The great changes that became evident during the years 1823 to 1828 were due, firstly to the appointment of John George Children (1777–1825) to the Assistant Keepership of the Natural History Department in 1823, and secondly to the appointment of a young man named John Edward Gray (1800–75) as his assistant in the following year. Children became particularly interested in the mollusca, and one of his first tasks was to compile a manuscript catalogue or check-list of the whole of the collection, both recent and fossil, a task nobly carried out in a thick folio volume still preserved in the Department of Zoology. Even this, however, did not include all the earlier Sloane material (which appears to have been finally sorted at a later date) only certain items being selected to complete the exhibited series.

Earlier lists compiled by Solander and later by E. W. Gray were naturally based on the 10th, 12th and 13th (Gmelin) editions of Linné's *Systema Naturae*, for at that time British conchology was entirely Linnean since the war with France precluded free access to continental literature. By the time of Children's appointment

(1823) the last three volumes of the *Histoire Naturelle des Animaux sans Vertébres* were already available, and this gave the opportunity to start afresh, cataloguing and arranging the Museum collections in accordance with Lamarck's system, which if not absolutely faultless, was considered by Children to be " at least superior to any other general system extant ".

The new catalogue or check-list was in effect an exact copy of all the families, genera and species listed by Lamarck in the *Histoire*, entered in precisely the same systematic order, with the tablet numbers of Museum specimens noted in red ink in a special column. The donors' names (Cracherode's most prominent among them) were also entered in red ink in another column. Occasional contributors to the collection included Lamarck himself, Dufresne, Stutchbury, Goodall, Bonelli and several lesser-known contemporary naturalists. At this time, and until 1837, the mollusca collections included fossil as well as recent shells, thus a large number of entries in Children's catalogue refer to fossil species (mostly from Grignon) and these are distinguished by the letter " F " in red ink.

Children's firm attachment to Lamarck's system was emphasized by the publication of his only work on the mollusca, a translation of Lamarck's *Genera of Shells*, which appeared in the *Quarterly Journal of Science* from 1822 to 1824, during his editorship of that journal. Further reference to this will be made later, but as it ran concurrently with the preparation of the Museum catalogue and rearrangement of the exhibited collections, it entailed a thorough search for suitable specimens for illustration and exhibition. Numerous Cracherode shells were used for both purposes, and from Children's pencil notes in the E. W. Gray manuscript catalogue it is evident that he checked practically the whole of the Cracherode collection at this time (*c.* 1822–24).

No new species appear to have been described as a result of this examination, a deficiency amply rectified by Children's new assistant Mr. J. E. Gray. Even at the age of twenty-four he was no stranger to the mollusca, having already published *A Natural Arrangement of the Mollusca* in the *London Medical Repository* for 1821.[1] This was followed by some descriptions of new species in his own *Zoological Miscellany* commenced in the same year. In 1824, the year of his Museum appointment, he contributed a description of the shells in the *Appendix* to Parry's *Voyage*, and several articles on mollusca in the first volume of the *Zoological Journal*. These included the now classic monograph on the *Cypraeidae*, much of which was based on Museum material and his own considerable private collection.

During the rearrangement and cataloguing of the mollusca collections by Children and Gray, it was soon noticed that there were a number of species not known to Lamarck, and these were published by Gray (but without figures) in the February and June issues of the *Annals of Philosophy* for 1825. Some of the undescribed Cracherode shells were included among Gray's new species, and these were accordingly added to the Museum manuscript catalogue, labelled (many by Children himself), and placed on exhibition, thus enabling Wood to figure them for the first time in his *Supplement* of 1828. Children's catalogue was further added to from time to time, often only in pencil in J. E. Gray's unmistakable scrawl, until in 1837 it was finally laid aside in favour of the system of registration in use to-day.

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[1] It may not be generally known that Gray's early arrangement published in this rather obscure journal was given in full by Johnston (1850, pp. 560–7), where it is also noted that it was reprinted by Férussac in the French *Bulletin* in 1824.

The great change in the arrangement of the mollusca collections at this time can readily be traced from the various editions of the *Synopsis* issued from 1823 onward, that for the year 1827 (ed. 25) being particularly enlightening, for by that time the exhibited collection had grown from the single table in 1809 to no less than 27 cases, all arranged on Lamarckian lines. The descriptions of these cases occupies pages 59–67 of the *Synopsis* of 1827, in which particular attention is directed to the recent change in the nomenclature used on the tablets. However, staunch adherents to Linné had still to be accommodated, and this was accomplished by placing the Lamarckian names on the left of the tablets and the Linnean on the right. No tablets labelled in this way are now extant.

The testimony of an anonymous and somewhat disgruntled visitor to the Museum at this period (published in Article II of the *Magazine of Natural History* for May 1828) is of interest. It was sent in the form of a letter to the editor, dated March 1828 (signed with the initial " B ") and purported to be some observations on the causes that had retarded the growth of natural history in this country, and on the " defective state of our Public Museums ", in which the correspondent opines " It is more than twelve years since I was induced to expect that a scientific arrangement of shells would be undertaken ; but after visiting the Museum for ten years . . . I discontinued my visits, as there appeared every probability that the present generation would pass away before it was accomplished. There were, indeed, some cases, with shells placed to amuse the spectator by the splendour of their colours, or the beauty of their forms ; but there was no systematic arrangement of them, nor were the shells labelled or described ".

This account confirms the suggestion already made that the shells were not fully labelled in the early 1800's. It is evident that some improvement was expected from 1816 onward, during the régime of W. E. Leach, but for various reasons this did not materialize. By 1826, " B " 's patience was exhausted, and visits to the Museum were discontinued, but oddly enough it was just at this time that concrete results of Children and Gray's efforts began to be seen in the public gallery, as proved by the *Synopsis* of 1827 noted above. The publication of " B " 's criticism in May 1828 must have prompted some well-meaning friend to suggest a visit to the British Museum, for in the very next issue of the *Magazine of Natural History* (Article II, July 1828) " B " hastens to make amends, saying *inter alia* " I can truly say, it gave me much pleasure to observe that a spirit of improvement had visited the British Museum, and that some of the arrangements . . . were at length accomplished in a satisfactory manner ". Room No. 8, " B " graciously observes " contains the collection of recent shells, in 26 cases, well arranged, and conveniently displayed for inspection. The names of Lamarck are on one side, and those of Linnaeus (which are here more generally known) on the other ". But even this improvement did not satisfy, for having previously complained that the earlier exhibit of shells had been arranged merely for the splendour of colour or beauty of form, " B " now regards the longed-for systematic collection " rather as a useful than splendid one, compared even with private collections in this country". The only clue to the identity of this anonymous critic is a definite bias in favour of the Paris collections, which were considered to be far in advance of our own.[1] It is some consolation to the museum worker to know that it was just as difficult to satisfy everybody over a century ago as it is to-day.

After 1827 the mollusca collections continued to grow apace, due largely to the continued interest of J. E. Gray, who with the assistance of Mrs. Gray was personally responsible for their arrangement. By 1841 the exhibited series alone filled thirty-eight cases. By 1856 this number had increased to fifty-two, until finally the exhibited collection filled well over 200 cases.

During all these years from about 1802 until 1936, when the large shell gallery at South Kensington was closed to the public, the Cracherode shells formed an integral part of the exhibited series. The writer well remembers seeing tablets marked "Mus. Crach" among the many thousands of shells comprising examples of every known family and genus arranged in systematic order, which were always on view for study by regular and casual visitors to the Museum. Even to-day a few Cracherode shells—notably a polished Ear Shell (*Haliotis iris*), in the case devoted to shell structure, and a group of red and white Thorny Oysters (*Spondylus americanus*), both mentioned in the *Synopsis* of 1809—are still on view in the much smaller post-war gallery allotted to the mollusca, which was arranged and opened in 1951.

In spite of long exposure to the light, the Cracherode shells are still in fairly good condition. The large number of specimens available makes it economically impossible to segregate them all from the General collection, but a representative series including recently recognized types and figured specimens has been set aside, to make the Cracherode collection comparable with those of Sloane, Banks and Pennant now kept as separate units.

3. NOTES ON THE CRACHERODE MANUSCRIPT CATALOGUES

There are four manuscript catalogues connected with the Cracherode collection in the British Museum (Natural History), two of which are preserved in the Department of Minerals and two in the Department of Zoology. Three of these volumes are in quarto and one in octavo, two of the quartos dealing with minerals, fossil shells, corals and echinoderms, and one with recent shells, corals and echinoderms. The remaining octavo contains recent shells only. One of each of these two pairs of catalogues is a fair and well-written copy of the other, stating on the title page of each that it was compiled from a catalogue prepared by George Humphrey, the dealer who supplied Cracherode with the specimens (Pl. 20, fig. 1.). This declaration is now known to be partly true of the mineral catalogue, but quite untrue of the one dealing with the recent shells.

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[1] It is quite possible that the anonymous critic may have been Mrs. Sarah Bowdich (1791–1856), wife of T. Bowdich (1791–1824) the well-known conductor of the Mission to Ashantee, and author of the *Elements of Conchology* published in Paris and London in 1822. Mrs. Bowdich was versed in conchology, having drawn all the plates for her husband's work. She also contributed several articles under her own name in the early numbers of the *Magazine of Natural History*, mostly in praise of the work of Cuvier, with whom she and her husband stayed during their residence in Paris,

The known hand-writing of the original mineral catalogue shows that it was certainly started by Humphrey, and then apparently handed to Cracherode with the representative collection systematically arranged and numbered. To this first series Cracherode continued to add items from time to time, entering each one in his own hand, and continuing the consecutive numbering from Humphrey's last entry.

There is no doubt that the small, rather crabbed writing in darker ink (Pl. 21, fig. 2.), is that of C. M. Cracherode, for it has recently been compared with the carefully written catalogue of his library (in his own autograph) now preserved in the Department of Manuscripts at Bloomsbury (Add. 11360). Further proof may be found in the personal monogram formed from the initials " C. M. C." written upon the fly-leaf of the library catalogue, which is the counterpart of one in miniature on the fly-leaf of the mineral catalogue dated 1788. This was the year in which Cracherode's taste for acquiring natural history specimens may be said to have started.

The Humphrey-Cracherode mineral catalogue, although numbered, does not include the prices paid for individual specimens which appear in the fair copy, and it therefore seems likely that Cracherode kept Humphrey's original priced labels with the specimens, perhaps in the small " cards " then in vogue.[1] The possibility that there were other priced catalogues remaining in Humphrey's possession in 1799 and lent for copying has not been overlooked, but the presence of several rough notes and computations of the number of species in the collection in E. W. Gray's writing, bound in with the original Cracherode catalogue, indicates that it was from this and the Humphrey labels that he compiled the fair copy, destroying the labels when the work was completed.

The title page of the octavo catalogue containing the recent shells, dated 1791 by Cracherode, bears a note in the autograph of J. E. Gray to the effect that it was the work of Edward Whitaker Gray. A further note was added by E. A. Smith on the fly-leaf stating that " This is interesting as showing the large prices fetched for some shells at that date ". Neither J. E. Gray nor Smith seem to have connected this small catalogue with Cracherode, although the wording of the entries is almost identical with that of the fair copy (Pl. 22, figs. 4 & 5), and thus it appears in the printed library catalogue of the British Museum (Natural History) (Vol. 2, p. 711, 1904) as a priced catalogue of shells by Edward Whitaker Gray, with Smith's brief observation attached.

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[1] Many items in the *Portland Catalogue* of 1786 consist of varying numbers of "cards " containing small shells ; Lot 2073 for instance comprises " Twenty-five cards containing various species of univalves " and Lot 2193 " Seven cards of rare univalves ". Although this suggests that small shells were glued to card mounts for safety, it is now known that the cards mentioned so frequently were in fact early plain-backed playing cards utilized by collectors for specimen trays. Instructions for making such trays may be found in a letter from Lewis Morris to his brother William Morris of Anglesea in 1756, recently quoted by Matheson (1955, pp. 264–5) in which Lewis says " Cards can be bought . . . at 4½d. and 6d. a pound, taking two pound together . . . They are such as have small blemishes not fit to be put in ye packs ". He then goes on to explain in some detail the making of these trays or " Boats " as he calls them. The Morris brothers were friends of Thomas Pennant and it is interesting to record that a few contemporary examples of card boats have been found in the latter's shell collection in the British Museum, Natural History, one or two of which still retain the playing card motives (notably a complete three of spades) on the reverse. Trade and invitation cards were also used for this purpose, until at a later date properly made cardboard trays were supplied by natural history dealers.

This whole catalogue, written in three parts (not two as stated in the B. M. catalogue entry quoted above) was the work of C. M. Cracherode and compiled between the years 1791 and 1799. The writing, although crabbed and at times palsied, is quite legible but scarcely compares with his finely-written library catalogue, for there are numerous alterations and erasures throughout, due no doubt to unfamiliarity with the objects themselves. Unlike the mineral catalogue, the shell catalogue does not give the number of the entries, but the price paid for each item is included, with some additional information not entered in the fair copy made by E. W. Gray in 1801. Part I of this small shell catalogue is devoted to Univalves (A to M only); Part II Bivalves and Part III Multivalves. Corals and echinoderms are not included, but appear in the form of an appendix in the fair copy, which again suggests that Humphrey's labels were with the specimens when received in 1799.

As already stated, the two fair copies made from Cracherode's originals were certainly the work of Edward Whitaker Gray, great-uncle to John Edward and a former Keeper of the Natural History Department and Secretary of the British Museum. Here again authorship has been satisfactorily proved by comparison with some E. W. Gray letters preserved at Bloomsbury (Add. 33981–59 & 63), and also with his signature in the Charter Book of the Royal Society of London, of which he was elected a Fellow in 1779 and Secretary in 1797.

It would have been difficult even for an expert to identify correctly all the shells in the Cracherode collection at the time of its reception. E. W. Gray had the whole of the Natural History Department, (which then included antiquities and coins) in his custody, and could do little more than compile a numbered list from the manuscript catalogues and Humphrey's labels. Humphrey was familiar with the 10th and 12th editions of Linné's *Systema*, but probably not with the 13th (Gmelin) edition of 1791, so that if a Linnean name could not be found for a specimen he frequently resorted to those of Solander used in the Portland and Calonne catalogues, together with the old established vernacular names, modified forms of which are still in use to-day.

E. W. Gray made a valiant attempt to supply the names of Gmelin and Chemnitz wherever possible. These he entered under the appropriate number on the opposite page of the catalogue, frequently leaving blanks where the species could not be satisfactorily identified from available literature, or had not then been described. Humphrey was a master of the conchological vernacular, so that the Cracherode manuscript catalogues form most interesting "repositories" of such euphonious names as the Brindled Music Shell, the Coronated Wild Music, the Guinea Admiral, Undulated Midas's Ear, the Pullet's Egg Anomia and the Furbelowed Clamp.

Notwithstanding the passing of rather more than 150 years since Humphrey's day, the examples quoted above are no more fanciful than many used quite recently. An American author has ingeniously found or devised a vernacular name for each of the 1,100 scientific names used in his book, from which it appears that the following short paragraph, concluding a list of current vernacular names in the article "Conchology" in the *Encyclopaedia Londinensis* (1810, p. 36), still retains a great deal of truth. "Hence it is evident that trivial names may be applied to shells as far as the species go, or as the fanciful imagination and invention of man can possibly extend ".

A number of the later Cracherode shells came from the famous Calonne collection sold by auction in 1797. Their origin was noted by Humphrey on his labels with the letters " M. C. " plus the Calonne catalogue numbers—details which were recorded by Cracherode in his own list but not copied by E. W. Gray in the Museum copy. This is a pity, because it is now difficult to trace Calonne specimens among the univalves beyond the letter " M ", where Part I of Cracherode's own catalogue ends, and where E. W. Gray apparently continued from the Humphrey labels. The Calonne shells are of interest, for in many instances they came from the Portland collection and were named by Solander. Cracherode paid heavily for these shells, the twenty-two marked " M. C." in his catalogue costing the not inconsiderable sum of one hundred pounds sixteen shillings.

Humphrey's prices were not always so high, for there are several items charged at as little as one, two or three shillings. The highest price paid was fifteen guineas for a single fine specimen of *Voluta imperialis* or Coronated Wild Music, from Luconia (Luzon, Philippine Is.).

It would be tedious to dwell too long on the various items of interest in these manuscript catalogues at this point, but one cannot help noticing the care with which the fair copies were compiled by E. W. Gray, long before separate guides to particular groups were printed and published. They were apparently kept with the collections for the use of students who eventually obtained permission to study the specimens in detail. E. W. Gray's clear copperplate style (rather more formal than his usual writing) was ideal for this purpose, with the popular and scientific names equally in evidence.

4. USE MADE OF THE CRACHERODE COLLECTION BY VARIOUS AUTHORS, WITH NOTES ON THE TYPES AND FIGURED SPECIMENS

When endeavouring to trace every author and all the specimens mentioned or described from an early collection, it is easy to overlook the obvious while searching for the obscure, and the following account of authors who have used the collection during the last 150 years is therefore offered with some slight reservation.

Cracherode is known to have welcomed visitors wishing to examine his books, prints and coins, but no mention of his shell collection appears to have been made in contemporary literature, although it must have been one of the finest in London at the time. George Perry (f. 1810), appears to have been the first author to have used the collection after it became available to the public at the beginning of the nineteenth century. Little is known of Perry, beyond the fact that he published two works on natural history during 1810 and 1811, the first being the *Arcana*, and the second the more notorious *Conchology*. Since he figured a few Cracherode shells, and mentioned the collection in glowing terms in both of his books, a short account of these and the effect they had on subsequent authors should find a place here.

The *Arcana* was a general miscellany covering several groups, similar in format to the *Naturalists' Miscellany* of Shaw & Nodder. It appeared in monthly parts, from January 1810 to September 1811, each part consisting of four colour plates with appropriate letterpress. For some reason the work aroused little interest until early in the present century, but the larger and more expensive *Conchology*, which contained a curious assemblage of good and bad figures, caused a great deal of controversy several years after its first appearance, when J. E. Gray decided to accept some of the previously-ignored names proposed therein.

These were added to the list of additions to his *Monograph of Cypraea* published in April 1828, which also included references to the eighteen species of *Cypraea* then being figured in Wood's *Supplement* published in the following month. Under *Cypraea princeps* Broderip, Gray noted " The name must be changed, as it is *C. Valentia* of Perry's *Conchology* t. 23, f. 2 where the individual specimen here described is well figured ". To this was added a footnote saying " I have ventured to refer to this work as I consider it just that every author should be quoted and this author has anticipated Lamarck, Swainson and Sowerby in several species "—a seemingly mild and honest statement that caused so much resentment and adverse criticism from G. B. Sowerby (first of the name), and other authors that no further credence was given to Perry's work until nearly the end of the nineteenth century.

While it must be admitted that much of the letterpress in both the *Arcana* and the later *Conchology* is not particularly good, the figures (although at times fantastic and of an almost dream-like quality) are sometimes excellent and clearly recognizable. The descriptions, meagre or prolix according to the fancy of the author, are sufficiently clear for there to have been no real reason to reject Perry's valid but unwelcome names, even if it meant upsetting those established by the various British authors who resolutely refused to study their predecessor's book.

Current opinions published by Sowerby and his fellow collaborators can of course be found in the pages of the *Zoological Journal*, but as these volumes are not always easily obtainable it may be permissible to quote a few of the opinions that led British workers to ignore Perry's work.

The first hint of displeasure from the Sowerby stronghold appeared in a footnote by G. B. Sowerby, appended to some critical remarks upon J. E. Gray's *Monograph of Cypraea by* L. W. Dillwyn in 1827 (p. 315), in which the latter merely referred to the *C. Dama* Perry. This was sufficient to call forth the remark that Perry's work was " the worst of all bad books, it ought never to be cited ". One can imagine Sowerby's displeasure when shortly afterwards Gray added the footnote quoted above, accepting more of Perry's names. Sowerby's immediate reactions were conveyed by letter to W. J. Broderip (later published in the *Zoological Journal*) in which the former gave an extremely destructive account of Perry's *Conchology*, accusing him of dreaming of extraordinary shells and committing them to paper immediately on waking! The letter contains more in the same vein, even the principal editor of the *Zoological Journal*, N. A. Vigors, added a note on his own behalf and that of his numerous editorial colleagues, to the effect that " It is the unanimous opinion that Perry's *Conchology* is not a work worthy of being cited as an authority."

The result of all this criticism was far-reaching in its effect, for, as may be seen from the conchological publications of British authors such as Wood, Burrows and

Hanley, there are few references to Perry's names (except perhaps as synonyms) although the *Conchology* must have been well known to all of them—for according to Hopwood (1946, p. 152) copies were still being printed as late as 1836.

Feelings continued to run high well into the 1840's ; during the course of his great *Conchologia Iconica*, Lovell Reeve paused several times to vilify Perry, notably in the description of *Ranella pulchra* Sowerby, in which Reeve says he " cannot agree with M. Deshayes in giving priority to the name assigned to the ' Finned Frog ' by Mr. Perry. That author has long forfeited the notice of scientific men by his absurd names and pantomimic display of figures ". (1844, *Ranella*, sp. 47.) Again, in the description of *Cypraea melanostoma* Sowerby (Ex. Leathes MSS.), Reeve makes the strongly-worded observation that " If every charlatan who sets himself up for a naturalist, with brush in one hand, and writing tool in the other, is to be regarded as an authority on scientific matters ; all the zoological signboards in the Kingdom might be quoted as figures of reference. For my own part, I consider the ' Cameleopard of Perry "should no more enter the nomenclature of zoology than the ' Red Lion of Brentford ' " (1845, *Cypraea*, sp. 17).

Reeve was referring of course to the *Cypraea camelopardalis* Perry 1811 (pl. 19, fig. 5) which caused so much annoyance to Sowerby when Gray adopted it " in opposition to that cited from the MSS. of a scientific gentleman ". Incidentally, it is interesting to see that the Cracherode specimen of *C. Camelopardalis* still bears Children's original label *C. melanostoma*, which rather indicates that as an editorial collaborator at the time of Vigor's note condemning Perry's work, he felt bound to retain the name used by Sowerby in opposition to Gray (Pl. 25, fig. 15*g*).

Both Sowerby and Reeve realized only too well that much of their careful work would be upset by the general adoption of Perry's nomenclature, and their opinions were therefore not without bias. By the force of their displeasure they succeeded in keeping this awkward volume in the background for the rest of their lives, an obscurity from which it did not emerge until referred to by Melvill in 1888 and by both Hedley and Gatliff in 1902.

Since the above notes were prepared, John Q. Birch of California has published a note on the resurrection of early names in his *Minutes* (1955, 152, pp. 2–3), in which he makes a belated attempt to uphold the dictum of G. B. Sowerby, W. J. Broderip and his followers in suppressing Perry's names. He apparently ignores the happenings of the last fifty years, for even now he considers it presumptuous " for a student in 1955 to bring up names rejected by such scholars, thereby upsetting over a century of conchology ". Others have since joined in the discussion, which continues.

It has already been mentioned that Perry referred more than once to the Cracherode collection in his *Conchology* of 1811, and brief examples of these references are given below. The first to be noted is the figure of a shell described as *Polyplex rugosus* (pl. 9, fig. 2) stated to be in the collection of Mr. Cracherode in the British Museum. This appears to be some form of *Nucella*, but a thorough search has failed to reveal the original among the Cracherode shells. The second reference is to a bivalve shell described as *Donax variegatus* (pl. 58, fig. 1) which can safely be assigned to *Egeria radiata* (Lamarck) taken from a specimen from which the thick brown periostracum had been removed by polishing, in order to show the bluish-green rays on the shell surface. This also is missing and may have been disposed of years ago as a spoilt specimen. Polished shells were much in vogue in Cracherode's day and long after, for there are still several fine specimens of polished mussel and pearl shells which at one time formed part of the exhibited collection.

Perry's pl. 59, dealing with the genus *Spondylus* is of particular interest, for he follows the description of his quite remarkable figures with a footnote saying that " These shells are found chiefly in the warmer climates of the globe, and from a numerous assemblage, the greatest variety of which, in one collection, may perhaps be seen in the museum of the late Mr. Cracherode, now united to that most valuable repository, the British Museum ". This was no exaggeration, for the Cracherode *Spondylus* must have formed a considerable ornament to the Museum collection, which could previously have had only a few rather dingy examples from the earlier Sloane collection. It is a pity that Perry chose to figure the odd-looking specimens shown on his plate, when he had access to those he praised so highly.

Before concluding this short account of Perry's *Conchology* it should be recorded that although no Cracherode specimens figured by him have been traced, an opportunity has nevertheless occurred to judge the extent to which the author erred in his figures. Pl. 24 is devoted to some fairly good representations of various species of *Conus*. Fig. 3, named by Perry *Conus fasciatus*, was apparently an attempt to portray the *Conus genuanus* Linné, the original of which was stated in the text to be in the British Museum (not on this occasion in that of Mr. Cracherode). At this time (1811) the Museum shell collections comprised only those of Sloane and Cracherode, so Perry's figured specimen could only have been in the former. On examining the series of *Conus* included in the recently recognized Sloane shells this was found to be so, the shell still retaining the Sloane catalogue number 2788. This specimen is still in excellent condition and shows that the artist kept to the general idea of the shell but, with the usual contumacy of the race, arranged the pattern more to his liking. Thus the typical semaphore-like dark brown dots and dashes interspersed with white became regular brown squares in the finished plate with some imaginary blue and brown lines added for full measure, almost destroying the true character of this well-known species. Although no defence of Perry is deserved or intended, it may be only charitable to suggest that some of the more peculiar figures may have been due to the artist engraver's interpretation of drawings passed on to him for reproduction, with the unfortunate results so bitterly resented by Sowerby and Reeve.

Early in the present century (1902) a more balanced view was taken of Perry's work, when Hedley and Gatliff independently pointed out its importance to Australian naturalists, particularly as Perry had access to the collection of Lt.-Col. William Patterson, Lieutenant-Governor of New South Wales from 1800 to 1802, who is acknowledged more than once in the text to the plates. In addition to the British Museum collections and his own possessions, Perry also used no less than twenty-four contemporary private collections—including those of Lady Wilson, Lord Valentia (after whom he named *Cypraea valentia*), Dr. Coombe, Dr. Lettsom, Humphrey, Bullock, Jennings, Stutchbury, Latham and Spurritt. From this it is obvious that he had the choice of much new and unfigured material, and it is difficult to understand why he did not confine his new names to these shells, rather than interfere with those already established. Changing the well-known *Oliva porphyria* (Linné) to *Oliva Leveriana* in " honour " of Sir Ashton Lever (pl. 41), was quite inexcusable.

Perry's *Conchology* is of value to the taxonomist by virtue of the names adopted or mentioned as synonyms by J. E. Gray (1828 & 1847) ; H. & A. Adams (1853–58) ; Hedley & Gatliff (1902) ; Thiele (1931–35) and Tucker Abbot (1954). The book has also a commercial value, the fine hand-coloured stipple engravings having a certain charm of design and colour, which appeals strongly to the producers of artistic trifles, a form of vandalism that is partly responsible for the extraordinary increase in the market price of the volume, from 28s. in 1912 (Hopwood, 1946, p. 153) to as many pounds at the present time.

The less-known and much rarer *Arcana* seems to have lain unnoticed until 1912, when Mathews & Iredale revived it as " An overlooked work " dealing very thoroughly with the birds and shells (many from Australia) figured and described therein. As the *Arcana* in some instances pre-dates the *Conchology*, it formed a veritable sepulchre from which to resurrect long forgotten and unheard-of generic and specific names, which had to be adopted under the rule of priority.

Little further need be said of the merits or demerits of the *Arcana*, except to deal with direct references to the Cracherode collection. Two of these are noteworthy, the first in a part of the text to pl. 47, describing *Aranea gracilis*, in which the author says " The most elegant specimen of this shell which we have hitherto seen, is that which was in the late Mr. Cracherode's collection and now deposited in the British Museum, the comparative value being appreciated by the number, length and preservation of the spines ". Although praising the Cracherode shell Perry did not state that it was the original of his figure, and it may therefore have been obtained from one of his numerous contacts, but there was certainly a suitable shell in the collection, No. 295 in E. W. Gray's catalogue, listed as Murex tribulus *Lin. Venus's Comb or the Double Thorny Woodcock from Hainan.* The only comparable specimen now present, however, is No 296 Murex tribulus *var. Lin. The Great Thorny Woodcock from China* (*Murex scolopax* Dillwyn), which has less numerous spines than the original of Perry's figure. Mathews & Iredale (1912, p. 12) considered this figure to represent the *Murex tenuispina* Lamarck, and allowed that well-established species to be superseded by *A. gracilis* Perry. However, a much more accurate figure of *tenuispina* appeared in the *Conchology* of 1811 as *Aranea triremis* (pl. 44, fig. 3.). It might be suggested that Mathews & Iredale were mistaken in identifying Perry's *Aranea gracilis* as *M. tenuispina* Lamarck, and that this figure represented a rather similar species, later described and dedicated to a famous malacologist, but to print the name of this species would burden the synonomy to no useful purpose.

The second reference to be noted is in the text describing *Strombus nigricans* (obviously the *Strombus chiragra* Linné), in which Perry praises such gifts as Brander's fossils to the British Museum, at the same time eulogizing the nobility of mind required to " appropriate the advantages of fortune to the improvement of science and knowledge . . . ". " Nor can we here omit the princely collection of shells formed by the gift and legacy of Mr. Cracherode, which has not, nor ever will be rivalled, containing specimens which cannot be removed or injured. Owing to the judicious arrangement of the British Trustees, it will be a standing monument of the general taste of the English nation ".

This excerpt gives some idea of the phraseology used throughout the text of the *Arcana*, which contains rather a small amount of useful information among a great deal of editorial padding. However, the stipple engravings of shells, drawn by G. Perry and engraved by T. L. Busby, are on the whole more reliable than those in the *Conchology*, and may now be regarded as the most useful part of this extremely rare book.

The next author to be considered is the gifted but unfortunate Dr. William Elford Leach F.R.S. (1790–1836), who would have had an even more brilliant career if his health had not broken down early in life, forcing his retirement from the Assistant Keepership of the Natural History Department of the British Museum, before he had held the post long enough to make much impression on the apparent chaos left behind by his predecessor George Shaw. The unfortunate state of the Zoological collections at the time of Leach's appointment (1813) has been recorded (through not without prejudice) in the personal reminiscences of William Swainson (1840, pp. 237–40), in which he says his friend's name " will be long cherished by those who remember his warm, frank, and generous disposition ; and will ever rank high in the science of this country, which, more than any other man, he released from the thraldom of prejudice and bigotry ".

Leach was particularly interested in the mollusca but much of his work remained unpublished at the time of his death in 1836—notably the unfinished manuscript of his *Synopsis of the Mollusca of Great Britain*, written between 1818 and 1820.[1] This was later purchased, together with the original plates, by J. E. Gray and with the permission of Leach's family was eventually edited and published in 1852, in the belief " that it was an act of justice to lay before the public the favourite and last work of my late friend " (Preface, p. vii).

Work published by Leach himself need only concern us here, however, and even this is confined to the first two of the three volumes of the *Zoological Miscellany* published between 1814 and 1817. As already noted in the account of the Sloane shells (Wilkins, 1953, p. 11) Leach's three volumes were practically a continuation of Shaw & Nodder's *Naturalists' Miscellany* completed in 1813, Nodder continuing to produce the engravings, but with greater accuracy than in the previous series. Of the thirty-three shells figured (many of which were new species), eleven have been traced to the Cracherode collection and recovered, including nine holotypes of Leach's new species. Since copies of the original *Miscellany* and even Chenu's reprint of 1845 are now rare works the English part of the brief descriptions are repeated here in full, together with the Cracherode catalogue entries.

As previously noted in the account of the Banks collection, it is now known to which species certain unpublished manuscript names refer. Unless these have already been published by Humphrey in the Calonne catalogue (1797) or used by

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[1] The first 116 pp., in proof only, were partly circulated in 1819.

Dillwyn (1817) as synonyms, they have been discreetly omitted from this list. Current generic and specific names, based largely on Thiele's *Handbuch* (1931–35) are printed in bold face italics at the head of each description, on the left hand side of the pages.

List of Cracherode Specimens Figured and Described by W. E. Leach in the Zoological Miscellany 1814–15

VOLUME I. 1814

1. ***Ensis ceylonensis*** (Leach) *Holotype.*

Page 22. Tab. VII (dated February, 1814)
Solen ceylonensis—Ceylon Razor-shell

> "Shell strait, with one extremity rounded, the other obliquely truncate; the hinge terminal, with one tooth in each valve; the teeth unequal.
>
> Inhabits Ceylon, where it seems not to be an uncommon species. The striae at the base . . . run longitudinally, and turn abruptly in a transverse direction, giving an appearance to the shell, of being obliquely divided into two parts, by a line running in a diagonal direction from one corner to the other."

Crach. No. 183. *Solen vagina, Lin. Cross-striped Solen from Tranquebar* . 8s.

	Length	Height	Thickness
Dimensions of Holotype .	124 mm. .	20 mm. .	13 mm.

Type locality: Ceylon
Other records (*vide* B.M. collections):
Aden; Bombay; Java; Chandipur; Ceylon.

The author's type locality seems reliable, as the species is common to the Indian Ocean generally; Humphrey's Tranquebar is itself a likely locality, though it appears also to have been an early centre for the distribution of Indian Ocean material by J. G. Konig and the Moravian Brethren mentioned in Solander's note to Banks (see p. 125 above).

2. ***Haliotis ruber*** Leach *Holotype.*

Page 54. Tab. XXIII (undated)
Haliotis ruber—Red Earshell

> "Red, transversely waved, with elevated, longitudinal, wrinkled lines.
> Inhabits New Holland."

Crach. No. 233. *Great Broad Ear Shell. New South Wales* . . . 1 1s. 0d.

	Length	Breadth
Dimensions of Holotype	116 mm. .	92 mm.

Type locality: "New Holland" here designated Port Jackson.
Other records: New Holland (Martyn 1784).
Port Jackson (Whitelegge 1889).
New South Wales (Allen, 1950).

This species is now known in New South Wales as the Sydney or Warty Ear Shell, very common on rocks and in crevices at low tide (Allan, 1950, p. 54). A larger polished specimen in the collection is one of those particularly noticed in the *Synopsis* of 1809. Leach in 1814 and Wood in 1828 continued to quote New Holland for New South Wales, although Humphrey had used the correct name for this part of Australia many years before.

3. ***Padollus scalaris*** **Leach** *Holotype.*

Page 66, Tab. XXVIII

Padollus scalaris—Staircase Padollus

> "Whitish variegated with rufous; whirls with three longitudinal elevated ribs; basal volution staircase-like above, with the inferior rib knotted, middle rib perforated (with five holes), upper rib longitudinally striated, the spaces between the striae wrinkled.
>
> There is one specimen of this rare shell in the British Museum, which is the only species of the genus that I have had an opportunity of examining. Country unknown.
>
> The number of perforations may probably not be constant; the character is therefore not introduced without caution."

Crach. No. 240. *The broad tuberculated Ear Shell from Hainan* . . . 8s.

	Length	Breadth
Dimensions of holotype	33 mm. .	25 mm.

Type locality: Swan River, S. West Australia (here designated).
Other records: Pai-ho, N.E. China (Cuming).
Java and Australia (Tryon, 1890).
Swan River (Cuming).
Western Australia (Allan, 1950).

From available records the distribution would appear to be from the Gulf of Po Hai (North of the Yellow Sea) to Hainan, through the Java Sea to the West Coast of Australia.

The Chinese localities, however, may be doubtful, for the species was not recorded by Yen in his *Review of the Chinese Gastropods* (1942), in which he notes the unreliability of some of the early material said to come from China, hence the choice of the well-known Swan River as the type locality. Lamarck gives Java as the locality of his *Haliotis tricostalis* (1822, p. 218), which is synonymous with the present species.

A certain amount of confusion has arisen among authors (notably Reeve, 1846) in mistaking the *Padollus rubicundus* Montfort 1810 for Leach's *P. scalaris*. But a study of Montfort's figure (1810, p.114), and his quite definite locality Africa leaves little doubt that the *Padollus rubicundus* Montfort was the African *Haliotis parva* Linné. The latter was well figured by Reeve (pl. 15, sp. 53 *a. b.*) who, with his frequent inattention to detail, added the much-used *Hab* ?, although Linné clearly gave *O. Africano* as the locality (*Linn. Syst. Nat.* ed. 12, p. 1256, 746). *Padollus scalaris* Leach appears elsewhere in the literature as *Haliotis tricostata* Wood (1828) and *H. canaliculata* Schubert & Wagner (1829).

It should be noted that the type specimen is immature, full-grown shells reaching a maximum length of 100 mm.

4. ***Pteria chinensis*** **(Leach)** *Holotype.*

Page 86, Tab. XXXVIII

Fig. 1

Avicula chinensis—Chinese Avicula

> "Dirty-citron colour, smooth, with two brownish-red radiating bands.
>
> This pretty shell is found in the Chinese seas in great abundance. The letter a, points out the situation of the byssus or beard by which it adheres to rocks, corals, and other hard bodies."

Crach. No. 84. *Brown striped yellow Swallow Pearl Shell from China* . . 10s. 6d.

	Length	Height	Thickness
Dimensions of Holotype .	60 mm. .	35 mm. .	13 mm.

Type locality : " Chinese Seas " here designated, restricted to Ticao, Philippines.
Other records : Ticao (Cuming).

New Caledonia (Cuming).
Ceylon (Craven, B.M.).
Isle de France (Lamarck).
Aden (Shopland, B.M.).

Widely distributed in the Indian Ocean and parts of the Indo-West Pacific, this species varies considerably in size and colour, but the brownish-red radiating bands mentioned by Leach are usually discernible. Specimens in the Museum collection from New Caledonia measure 135 mm. in length, while those from the Philippines, Ceylon and Aden are approximately the size of the type. *Avicula crocea* Lamarck and *Avicula trochilus* Reeve are synonyms.

5. ***Pteria morio*** (Leach) *Holotype.*

Page 86, Tab. XXXVIII
Fig. 2
Avicula morio—Black Avicula

" Black, striated concentrically ; epidermis brown, elevated into undulations, which are arranged in lines radiating from the beak.

This rare shell was obtained from Pulo Condore, an East Indian Island, and is preserved in the British Museum."

Crach. No. 83. *Mytilus hirundo. Lin. var.* (*Margaritifera hirundo*). *Large brown variety of the Swallow Pearl Shell with a small coxcomb oyster adhering. From Pulo Condore* . . . 10s. 6d.

	Length	Height	Thickness
Dimensions of Holotype . .	122 mm.	60 mm.	22 mm.

Type locality : Pulo Condore.
Other records : Malacca Strait (Cuming B.M.).

From the above records the range of this species appears to be rather restricted, but it probably occurs in other waters under different names—perhaps the very similar *Avicula castanea* and *signata* Reeve, said to come from Singapore and Madras.

Leach's type specimen (from which the adherent oyster has long since been removed), was figured for the second time by Wood in the *Index Testaceologicus* of 1825 (pl. 12, fig. 43) copied from Leach's figure but without acknowledgment, and with the locality Red Sea. In his monograph on *Avicula* (1857, sp. 71), Lovell Reeve gave an excellent figure drawn from the Cracherode shell, with the original locality Pulo Condore, but he unfortunately ascribed it to *Avicula savignyi*, a name published by Deshayes in 1830 (**2**, 100), and again in 1836 (**7**, 102), where Leach's *morio* was merely mentioned as a variety of Deshayes' own, and much later *Avicula savignyi*. Reeve attributes Leach's name to Dillwyn in his brief synonymy.

Similar inaccuracies, not uncommon at the time, occur throughout the many volumes of the *Conchologia Iconica* and do much to mar its usefulness, but even these mistakes cannot detract from the real beauty of the figures, the excellence of which " will for ever remain unrivalled " (Melvill, 1900, p. 347).

6. ***Pinctada radiata*** Leach) *Holotype.*

Page 98, Tab. XLIII fig. 13.
Avicula radiata—Rayed Bird Shell

" Shell griseous with purplish rays : epidermis concentrically elevated, with processes arranged into radiating lines.

This shell is generally supposed to inhabit the West-Indian Seas, but I have not been able to ascertain the truth of this conjecture.

The elevated processes of the epidermis, on close examination, seem to be membranaceous, with fine concentric rings of shelly matter deposited on them."

Crach. No. 82. *Mytilus margaritiferus Linn. var.* (*margaritifera occidentalis*)
West Indian Mother of Pearl Shell . . . . . . 10s. 6d.

	Length	Height	Thickness
Dimensions of holotype . .	55 mm. .	56 mm. .	23 mm.

Type locality : Here designated Gulf of Mannar.
Other records : Tranquebar (Wood, 1825).
Gulf of Mannar (B.M. collections).
Maldive Islands, Persian Gulf, Red Sea, Suez, South and East Africa, Malay Peninsular, N. Australia S. to Sydney (vide Jameson, 1901 ; Prashad, 1932 and Hynd, 1954, and B.M. collections).

The Gulf of Mannar, chosen as the type locality of *P. radiata*, was still recongized by Hornell in 1951 (p. 53), as the most important pearl fishery in India. From an account of the fishing operations during March and April 1797 by H. J. Le Beck it appears to have been particularly flourishing during the late eighteenth century and the most likely origin of some of Humphrey's stock, for as the author says " no place in the *East Indies* abounds more with rare shells ". Beck's excellent account, which includes an early attempt to describe the anatomy of *Pinctada*, was considered of sufficient importance to be reprinted in full in the *Annual Register* for 1799 (pp. 380–91).

Jameson (1901, p. 389) and Tucker Abbott (1954, p. 359) identify *Pinctada radiata* (Leach) with the West Indian or Atlantic Pearl Oyster, but a careful comparison of the recently recognized holotype with an extensive series from the pearl banks at Mannar, shows clearly that it is a typical example from the Indian Ocean and not from the Atlantic. In consequence Leach's name replaces the later *P. vulgaris* (Schumacher, 1817) the name by which the Eastern Lingah shells have usually been known. J. S. Hind (1954, pp. 113–4) discusses the merits of Schumacher's *P. vulgaris*, saying that his figure is too poor and his description too brief to be of any real value, and he therefore chooses the *Avicula fucata* Gould (1850) to replace it, noting that "This Australian species is conspecific with the lingah pearl oyster of the East Indies and the Persian Gulf ". If this is so, the *P. radiata* (Leach, 1814) should be used in preference to the later *fucata* Gould, particularly as Leach's type specimen (Pl. 25, fig. 13) shows the same characteristics as Hynd's own figure of a typical *fucata* from Torres Straits (pl. 1). The transverse markings on the growth processes, said by Hynd to be absolutely diagnostic of the species, must surely be the fine " concentric rings of shelly matter " referred to by Leach in his original description.

Leach's original figure of *P. radiata* was clearly copied by Wood in 1825 (pl. 12 *Mytilus*, fig. 5), this time with acknowledgment to the *Zoological Miscellany*, but with the very suitable locality Tranquebar. The various species of the ubiquitous pearl oysters occurring in Oceania have also been discussed by Prashad (1932, pp. 99–102) and Iredale (1939, pp. 333–40), the latter suggesting the replacement of *P. vulgaris* Schumacher by *P. radiata* (Leach), but relating it to the Atlantic area rather than to the Indo-Pacific.

The widely distributed Lingah shells are fished mainly for the contained pearls, often of great value, the shells themselves being thin and of little use commercially. Fully mature specimens seldom reach more than 70 mm. in length, and even these are left derelict by the pearl fishers.

7. ***Pinctada margaritifera*** (Linné) *Holotype.*

Page 108, Tab. XLVIII
Margarita sinensis—Chinese Pearl-shell

" Brown radiated with white ; internally pearly bordered with brown ; epidermis concentrically elevated, with processes arranged in somewhat radiating lines.

Inhabits the Sea of China, but is rarely found in such perfection as that exhibited in the annexed plate. It seems to have been confounded with the common pearl-shell."

Crach. No. 81. Mytilus margaritiferus *L. var. Lesser Chinese Mother of Pearl Shell* . . . . 15s.

	Width	Height	Thickness
Dimensions of holotype . .	100 mm. .	100 mm. .	27 mm.

Type locality : China.

It is curious that the observant Dr. Leach should have described this shell as a new species, for it is only a small *Pinctada margaritifera.* The species is known by many trade names, applying to the texture of shells from certain areas rather than to any real specific differences. The present specimen appears from the list supplied by Jameson (1901, p. 375) to be Black-edged Banda Shell, peculiar to the Malay Archipelago, China, Banda Sea and the Maldives, and compares favourably with trade samples so labelled in the Museum collection. Leach's new genus *Margarita* 1814, of which his *M. sinensis* is the type species, is a synonym of *Meleagrina* Lamarck 1812 and of the still earlier *Pinctada* Röding 1798.

8. ***Pinna (Streptopinna) saccata*** Linné *Figured specimen*

Page 130, Tab. LVII.
Pinna saccata—Bag Pinna

> " Shell smooth, bag-shaped (anteriorly at least), ribbed, externally abruptly produced, somewhat distorted. This rare pinna is readily distinguished from all other species by its distorted irregular form. Some specimens are ribbed from base to point, others only anteriorly.
>
> Inhabits the Indian seas, and is esteemed a rare species."

Crach. No. 182. Pinna saccata *Lin. Satchel or Crooked Pinna from Pulo Condore* . . . . £3 3s. od.

This Cracherode specimen is still in excellent condition and is a notable example of a species which, with the exception of the *Pinna Nuttallii* Conrad 1837 and one or two unimportant varietal names, has remained sacrosanct since it was first described by Linné in 1758. According to Winckworth (1929, p. 289) it is a widespread species, having been recorded from the Red Sea, Ceylon, S. Africa, Amboyna, Philippines, Sandwich Is., and Japan. Iredale recorded it from Queensland in 1927 (p. 333) designating a new sub-species *inusitata* based partly on colour variation—not a very reliable character in a species which normally ranges from white to yellow, amber, red, purple and almost jet black !

9. ***Haliotis cracherodii*** Leach *Holotype.*

Page 131, Tab. LVIII
Haliotis cracherodii—Cracherodean Earshell

> " Bluish-black above, umbo lateral-dorsal ; internally pearly and iridescent.
>
> The shell from which the annexed figure is taken, forms a part of that splendid collection of shells bequeathed to the British Museum by the late Rev. C. M. Cracherode, whose name it bears. It is said to be a native of the Californian coast, and is generally esteemed a rare species."

Crach. No. 237. Haliotis . . . *Blackish-green Ear Shell, from California* . £4 4s. od.

	Length	Breadth
Dimensions of holotype	85 mm. .	70 mm.

Type locality : California.
Other records : Baja, Lower California (B. M. collections).
Coos Bay, Oregon to Lower California (Tucker Abbott, 1954).

This is the well-known Black Abalone which occurs fairly abundantly from Oregon to L. California. It is edible and particularly enjoyed by the Mexicans. There are normally eight holes in the shell, but these may vary in number or even be entirely absent, a feature that has given rise to several subspecific names, notably *imperforata* Dall, *holzneri* Hemphill, and *lusus* Finlay.

Haliotis californiensis was described by Swainson in the *Zoological Illustrations* in 1821 (Ser. 1, **2**, pl. 80) based on the smoother 12–16 holed form of *H. cracherodii*, since recorded on the islands from the Farallones to Guadalupe (Keep, 1935, p. 144), and now regarded as the only reliable sub-species. Incidentally, *H. cracherodii* Leach provides good material for the study of shell pigments, for the distinctive bluish-black outer layer of the shell is said to contain, among other substances, a blue acid-soluble pigment related to indigotin, which has been the subject of more study than any other single pigment extractable from shells (Comfort, 1949, p. 86).

10. ***Clithon coronata*** Leach *Holotype.*

VOLUME II, 1815 Fig. 11

Page 122, Tab. CIV

Clithon coronata—Crowned Clithon

"Black; first whirl above, with elongate, subsetaceous spines; epidermis obliquely elevated into lines; pillar obtusely unidentate.

The locality of this species is not known; it is certainly distinct from the *Clithon corona* of De Montfort."

Crach. No. 354. Nerita corona. *Linn. Aculeated fresh-water Nerite. From the Ganges* . . . . £3 3s. od

Length	Width	Length of spines
22 mm.	24 mm.	22 mm.

Type locality: Here designated Mauritius.
Other records: Rodriguez & Mauritius (B.M. collections).
Malagachian Islands (Baker, 1923).
Mauritius (Viader, 1937).

The Cracherode specimen is definitely the original of Leach's two figures shown on pl. 104 of the *Zoological Miscellany*, but unfortunately both were reversed by the engraver. When figured in 1815 the spines were already damaged, the missing portions being indicated in the engraving by dotted lines; since then one more spine has gone, but even so the shell can still be recognized as the original.

As pointed out by Baker (1923, p. 156) Montfort clearly figured this species when describing his genus *Clithon* in 1810 (**2**, p. 326), but attributed it to *Nerita corona* Linné, a different species. The spines in De Montfort's figure are at a different angle to those in the type specimen, in which several spines rise at right angles to the shell surface—a feature common enough in a long series, that may have led Leach to believe his shell to be distinct.

Judging from the price charged by Humphrey, the species must have been considered rare at the time, and the Cracherode shell was probably the only one available for study. *Clithon coronata* was renamed *longispina* by Recluz in 1841 (p. 312), Leach's earlier name being quoted but denied priority in the rather carefree manner of the period. Humphrey's locality of the Ganges seems to be without foundation, for none of the spined Neritinidae occur in India.

11. ***Anostoma octodentatum*** Fischer de Waldheim *Figured specimen.*

Page 128, Tab. CVII

Tomigeres ringens—Grinning Tomiger Fig. 10

"Shell whitish, spotted with ferruginous, the spots often running together; mouth multidentate, the teeth unequal. The mouth varies extremely in the number and proportion of the teeth; the internal lip generally has two teeth, rarely three; the exterior lip has from three to five teeth, which are always of unequal sizes."

Crach. No. 269. (Lucerna antiqua) *Helix—Antique Lamp from Brazil* . £8 8s. od.

This peculiar land shell, with its upturned mouth, has greatly intrigued conchologists since it was first figured and described by Nehemiah Grew in 1681 (p. 136, pl. 11), in which he calls it the Fore-Whirled Snail (*Cochlea Turbine antico*), because " contrary to all other shells I ever yet saw, it hath the *Turban* or *Whirle* made before . . . The assertion of *Aristotle* that the *Turban* always stands behind, is here proved false ".

Later authors, including Leach, referred this species to the *Helix ringens* Linné (the Grinning or Ringent Snail particularly noticed in the *Synopsis* of 1809) ; but Hanley (1955, p. 363) after due deliberation concluded that the *Anostoma globulosa* Lamarck was the true *ringens* Linné, a decision with which Pilsbry agreed (1902, p. 114–5). This confusion arose because Linné described his species from a specimen in the Tessinian Museum, of which no exact figure then existed, references being given to figures which did not precisely fit the description but only bore a resemblance to it.

No hint of locality was given in Leach's description quoted above, and it seems that in this and other instances, he did not bother overmuch to consult the records then available, since the correct locality agrees in the Cracherode and Calonne catalogues. It appears in the latter as item No. 1128 (p. 61) " *Lucerna Antiqua—L'Antique—Antique—Brasil—Helix ringens Linn. Very rare* ".

In concluding these notes on Leach's types and figured specimens from the Cracherode collection, it may be of interest to say that although most of these were marked " Mus. Cracherode ", only one had been transferred to the type collection. Thus eight hitherto unrecognized figured holotypes have been identified from this one source. This indicates the importance of occasionally re-examining old collections, which may have been taken very much for granted in the past. The recent discovery of the types of such well-known species as *Haliotis cracherodii* and *Padollus scalaris* will, it is hoped, encourage other curators who have early collections in their charge to re-examine them with similar results.

The appointment of the versatile John George Children to the Assistant Keepership of the Natural History Department, in succession to W. E. Leach, has already been referred to above, and in view of his translation of Lamarck's *Genera of Shells*, it was thought that a search among the Cracherode shells for some of his figured specimens would not go unrewarded. As a result, thirty specimens have so far been recognized as the originals of those figured in the work hereafter referred to as *Children's Lamarck*.

Before listing these surviving figured specimens, it would be as well to briefly review the effect that the completion of the mollusca volumes of Lamarck's *Histoire* had on the student and general collector of the period. Until that time the simple but inadequate Linnean system had held ascendancy over all others, at least in this country. Lamarck's work, although welcomed by the student, was greeted with some dismay by the general collector who had hoped to name all his specimens from it—a task made even more formidable by the greatly increased number of genera and species. That it was written in French, a language less fashionable than in the previous century, was another drawback to its immediate popularity to the general user. Hence the appearance of several " translations ", compiled with the expressed intention of simplifying the new method for those, as one author put it " who may be disinclined to purchase an expensive book, or are altogether unacquainted with the language in which it is written . . . thus enabling them to keep pace with modern science, by understanding *something* of the new arrangement ". (Dubois, 1825, p. 8.)

There were at least five of these translations, three in England and two in America. The first (1822–24) was by J. G. Children ; the second, called *An Epitome of Lamarck's Arrangement of Testacea* by Charles Dubois, first published in 1823, with further issues up to 1828 (the last with a few coloured plates) ; and the third, *An Illustrated Introduction to Lamarck's Conchology* by E. A. Crouch was printed in 1827, with fine lithographic plates by the author. Little more need be said of the last two English translations, which were only intended to serve " those who are not intimately acquainted with the science " (Crouch, p. iii). Nevertheless, both gave clear and concise descriptions of the genera, with examples of the species. Dubois apparently relied on his own judgment, but Crouch (being somewhat later in the field) had the advantage of consulting both Dubois and Children's work, and at least one of the latter's figures was copied and acknowledged (p. 2, pl. 1. fig. 7). This fact contradicts Kennard & Woodward's statement (1922, p. 48), that, although Crouch thanked Children for " polite attention " at the Museum, he did not appear to have consulted Children's work in connection with his own.

The fourth attempt to be noted was a neat little translation by A. A. Gould published in Boston in 1833, in which both Crouch and Children's works were noted, the latter erroneously attributed to Leach. Gould's book, which merely gave lists of species as examples of each genus, was followed by a *Manual of Conchology*, published in New York by Thomas Wyatt in 1838, which professed to give " a free translation of Lamarck's system, as simplified by de Blainville " and as usual was " divested of numerous technicalities " a process which excluded all authorities for the names used, many of which were additional to Lamarck's own lists of species. Wyatt's *Manual* was overlooked by Kennard & Woodward in their paper of 1922, but should have been included by virtue of the occasional use of the word " type ". This appears first of all on the title page, which states that the book is illustrated by thirty-six plates " containing more than two hundred types, drawn from the natural shell " and further on (*Introduction*, p. v) " a type of almost every genus is given ". On p. 111 *Clausilia laevis* is said to be " A regular type of this genus " from which it is clear that " type " meant no more to Wyatt than " example ".

Children's Lamarck falls into a different category, and in recent years has become of considerable importance. Whereas Dubois, Crouch and Wyatt gave only examples of Lamarck's genera, Children apparently designated a type species for each of the shell-bearing genera in the *Histoire des Animaux sans Vertèbres*, a procedure not usual at the time of Lamarck's publication (1818–22). Thus only examples of each genus were given by Lamarck in his *Prodrome* and later works, and even these were frequently changed, sometimes for no apparent reason. Practical use of Children's designations in modern taxonomy needs special knowledge, to which an important contribution was made by Kennard, Salisbury & Woodward in a paper published in 1931, where the matter is fully discussed and the valid type species listed with critical notes.

The plates accompanying the parts of *Children's Lamarck* are of particular interest, for they were principally drawn from specimens in the British Museum by the author's daughter Anna Children, later Mrs. Atkins. This is yet another example of filial devotion similar to that of Anna and Susanna Lister, who worked so hard on the figures for their father's *Historia Conchyliorum*, and again Lamarck's devoted daughter Cornélie, who acted as amanuensis during the years of his approaching and final blindness. According to Kennard & Woodward (1922, p. 48), Children's figures were the first to be used to illustrate Lamarck's genera, " and it is unfortunate that the figures were not better drawn ". Miss Children's work, however, if not brilliant, is fairly competent, and had she been a more skilful artist versed in conchology, she might have tried to improve on the specimens selected by her father from the Museum collections. In fact she drew what she saw, and one must be grateful that certain blemishes in the shells have been faithfully repeated in the figures. One example only will illustrate the point—in the figure of *Bulla lignaria* (pl. VII, fig. 23) the upper part of the lip of the shell is seen to be chipped, exactly as in the Cracherode specimen (our pl. 23, fig. 8.), a blemish without which the figure would have resembled any number of *B. lignaria*, since Miss Children's figures were seldom drawn to scale.

While Kennard, Salisbury & Woodward (1931, p. 1) credit Children with an understanding of " type " in its modern sense, there seems little doubt that the latter's desire to figure an example of each Lamarckian genus (as far as possible from actual specimens), was governed by availability as well as suitability. Although Children usually regarded the first species cited by Lamarck as the author's type of the genus, in many instances the species figured in the translation was not the first on the list, probably because actual specimens were not available at the time. For example, Children names and figures *F. colus* (Linné) as the type of *Fusus*, adding in a footnote that this is " Lamarck's third species ; his type is *F. colosseus* ". According to Children's own manuscript catalogue this species was not then represented in the Museum collections.

Sometimes species may have been selected because specimens of the first listed species were too bulky to be carried home to Miss Children for figuring. Thus the moderately-sized *C. glauca* (Linné) was selected as the type of *Cassis*, in preference to the large and weighty *C. madagascariensis*, although the latter species appeared at the head of Lamarck's list, and was noted by Children to be his type. Similar replacements occur throughout the work, but are always mentioned by the author at the foot of the relevant page.

In order to show the method of arrangement in the extremely rare *Children's Lamarck*, one generic and specific description will be given, which also indicates the preference for a specimen readily available from the Cracherode collection. The example selected is the genus *Haliotis*, placed by Lamarck in the Macrostomiana, the seventh family in his Order Trachelipoda.

Page 249 4. *Haliotis*

> Shell auriform, usually flattened, spire very short, sometimes depressed, sublateral. Aperture very large, longitudinal, and, in the perfect shell, entire. Disc perforated with holes, disposed in a line parallel to, and near the left lip ; the last hole incomplete, forming only a notch. No operculum.

Type. *Haliotis Iris** (Idem. *Gmel.*)

Shell rounded-oblong, very large, thin, rugose-plicate, prettily varied with green, red, and blue; spire sub-prominent, obtuse; left lip elevated. *New Zealand.* Pl. VIII. Fig. 158. 15 species.

The above generic and specific descriptions were a true translation of Lamarck's originals taken from the *Histoire* (Tome 6, Pt. II, p. 214, April 1822) and appeared in the fourth part of *Children's Lamarck* published in July 1823. It is of interest to note that the species selected by Children as his type of *Haliotis* formed a spectacular exhibit among the Cracherode shells in the public gallery, and was thus more readily available for illustration than a specimen of *H. midae* from the Sloane collection, much of which was probably still secreted in " drawers in the imposts round the room ". A specimen was certainly there, purchased by Sloane with Petiver's shells, and now available with the rest of the recently recognized Sloane material.

From the above notes it would seem that all Children intended to do was to give a literal translation of Lamarck's generic descriptions, together with a figure and description of one species of each genus. Nowhere in his introductory text does he say anything to indicate that he understood the importance of designating type species, which only developed during the latter half of the nineteenth century. Indeed, in a PS. to his introductory text, the author unpretentiously notes that " we believe every genus is now illustrated with an appropriate figure " (p. 259). The present importance of Children's work, however, rests mainly on his use of the word " type " rather than " example ". Whether intended or otherwise, his usage agrees with the now established rules regarding the designation of type species by subsequent authors (Article 30 (*g*) of the International Rules of Zoological Nomenclature).

Although Kennard, Salisbury & Woodward were mainly concerned with nomenclature, it is odd that they almost ignored the well-filled plates, merely remarking on the apparent poorness of the figures. Thus several misidentifications, such as *Ceratodes cornuarietis* for *Planorbis corneus*, and *Fissurella picta* for *F. nimbosa* passed unnoticed. Children's main object was to familiarize the general worker with Lamarck's new genera by means of illustrated examples, a task not attempted before, and none too easy with the limited material available at the time. The shells used for this purpose are of course no more than figured specimens, but as so many of them have recently come to light, it is of interest to record their existence in the National collection.

In the following list, the current generic and specific names of the figured Cracherode specimens are shown in bold face type on the left of the page, with the generic and specific names used by Children beneath, followed by references to the plates and figures in the various parts of the *Quarterly Journal of Science* (*Q.J.S.* in the list). In addition each species is referred to Kennard, Salisbury & Woodward's paper of 1931 (K. S. W. in the list), in which the errors and necessary alterations to the nomenclature since Children's day were noted in detail. As in the previous list, the Cracherode numbers and relevant catalogue entries are given, with brief additional notes where necessary.

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* A rainbow 2d species.—Lamarck's type is *H. midae.*

Cracherode Specimens Figured by J. G. Children when Selecting his Types for Lamarck's Genera of Shells in 1823

1. ***Dentalium elephantinum*** Linné

Genus : Dentalium. Type : *Dentalium elephantinum* (Idem Linn.).

Q.J.S., XIV, p. 69, pl. III, fig. 2. October 1822. K. S. W., p. 4.

Crach. No. 222. Dentalium Elephantinum *Linn. The Elephant's Tusk. From China* . . . . 10s. 6d.

2. ***Ensis ceylonensis*** (Leach)

Genus : Solen. Type : *Solen vagina* (Idem *Linn.*).

Q.J.S., XIV, p. 83, pl. IV, fig. 26 (Interior and exterior). October, 1822. K. S. W., p. 5.

Crach. No. 183. Solen Vagina *Linn. Cross-striped Solen. From Tranquebar* 8s.

The specimen has already been described on p. 140 above, and appears to have been mistaken by Children for the European species, probably because the name *vagina* was written upon it by E. W. Gray in 1801 and taken to be correct.

3. ***Donax scortum*** Linné

Genus : Donax. Type : *Donax scortum* (Idem *Linn.*)

Q.J.S., XIV, p. 308, pl. V, figs. 49*a*, *b*. January 1823. K. S. W., p. 8.

Crach. No. 45. Donax Scortum. *Sharp ridged Donax. From Tranquebar* 8s.

4. ***Trapezium sowerbyi*** Hidalgo fig. 3*b*.

Genus : Cypricardia. Type : *Cypricardia guinaica* (Chama oblonga *Linn.*).

Q.J.S., XIV, p. 316, pl. VI, figs. 61, 61*a*. January 1823. K. S. W., p. 10.

Crach. No. 35. Chama oblonga *Solander. Purple oblong Chama. From Pulo Condore* . . . . £3 3s. 0d.

The history of the confusion between the shell now known as *Trapezium sowerbyi* and the Linnean *Chama oblonga* has been adequately recorded by Solem (1954, pp. 66–68), wherein he notes that a great deal of the confusion was caused by a figure published by G. B. Sowerby in 1822 (pl. 77) which he attributed to *Cypricardia oblonga* Linné in error. It is now evident that Sowerby figured the Cracherode specimen on which the name *Chama oblonga* had been inscribed by E. W. Gray, copied from the original Cracherode manuscript catalogue. The same shell was figured by Children as the type species of *Cypricardia*, with Lamarck's specific name *guinaica*, now recognized by Solem as a synonym of the true *T. oblongum* (Linné). The Cracherode specimen appears again in Lovell Reeve's *Conchologia Systematica* (1842, pl. LXXX) for which Sowerby lent many of the plates used in the *Genera of Recent and Fossil Shells* (1820–25).

5. ***Cucullaea concamera*** (Bruguière)

Genus : Cucullaea. Type : *Cucullaea auriculifera* (Arca cucullus *Gmel.*).

Q.J.S., XIV, p. 318, pl. VI, figs. 64, 64*a*. January 1823. K. S. W., p. 11

Crach. No. 9. Arca labiata *Soland. Lipped or Valved Ark. From Nicobar Isles* . . . . £4 4s. 0d.

K. S. W. state that the type of *Cucullaea* by tautonomy is *C. cucullus* (Gmelin) 1791, a synonym of the earlier *concamera* Bruguière 1789.

6. ***Prisodon syrmatophora*** (Gmelin)

Genus : Hyria. Type : *Hyria avicularis* (Mya syrmatophora ? *Gmel.*).

Q.J.S., XV, p. 25, pl. II, figs. 70, 70*a*. April 1823. K. S. W., p. 12.

Crach. No. 67. Mya . . . *The Eared Mya. From Brazil. One Valve uncoated and polished* . . . . £3 3s. od

There seems little doubt that Children's figured specimen is the *Mya syrmatophora* described and figured in the *Zoophylacium* of Gronovius in 1778, quoted by Gmelin (p. 3222) and apparently the var. B (*testa transversim abbreviata*) of *Hyria avicularis* noted by Lamarck in the *Histoire*. The Cracherode shell certainly has the name *Mya syrmatophora* clearly written upon one of the valves by E. W. Gray in 1801, some years before Lamarck's description of his more elongate species ; furthermore there were only two species of *Hyria* in the Museum collection in 1822. *H. avicularis* (catalogued with *syrmatophora* as a synonym) and *H. corrugata*, Lamarck's second species, both Cracherode shells.

7. ***Crenatula folium*** Gray Pl. 24, fig. 7.

Genus : Crenatula. Type : *Crenatula modiolaris*.

Q.J.S., XV, p. 35, pl. II, figs. 81, 81*a*. April 1823. K. S. W., p. 13.

Crach. No. 93. Ostrea . . . (Vulsella folium) *White Leaf elegantly marked Vulsella, faintly rayed with violet. From ——. Unique.* £8 8s. od.

This is one of the highly-priced Calonne shells and will be referred to more fully later. According to K. S. W. (p. 13) the name used by Children cannot stand as the type species of *Crenatula* as it was not included in the genus when founded by Lamarck in 1802, and preference is therefore given to the *C. mytiloides* selected by Gray in 1847 (p. 200). Once again this was probably the only *Crenatula* available to Children for figuring, Lamarck's *modiolaris* seeming nearest to it. Gray evidently disagreed with Children's determination and fully described the Calonne shell as a new species in 1825.

8. ***Pteria chinensis*** (Leach)

Genus : Avicula. Type : *Avicula crocea*.

Q.J.S., XV, p. 37, pl. II, figs. 84, 84*a*. April 1823. K. S. W., p. 14.

Crach. No. 84. Mytilus . . . *Brown striped yellow Swallow Pearl Shell. From China* . . . . 10s. 6d.

This is another example of the frequent disregard of existing names by some early nineteenth century authors, for Children makes no mention whatever of Leach's name given to this actual specimen a few years previously, and well-figured in the *Zoological Miscellany*—even Lamarck makes it a synonym of his own *Avicula crocea* first published in the *Histoire* in 1819 (**6**, (1), 148).

9. ***Pinctada margaritifera*** (Linné)

Genus : Meleagrina. Type : *Meleagrina margaritifera* (Mytilus margaritifera *Linn.*).

Q.J.S., XV, p. 37, pl. III, figs. 85, 85*a*. April 1823. K. S. W., p. 14.

Crach. No. 80. Mytilus margaritiferus *Linn.* (Margaritifera nigra) *Black Mother of Pearl Shell. From Otaheite* . . . . . £1 1s. od.

The shell figured was probably brought from Tahiti by one of Capt. Cook's men, and as can be seen from the figures the shell margins have been ground smooth and pierced for use as an ornament.

10. ***Pedum spondyloideum*** (Gmelin)

Genus : Pedum. Type : *Pedum spondyloideum* (Ostrea spondyloideum *Gmel.*).
Q.J.S., XV, p. 38, pl. III, figs. 86, 86*a*. April 1823. K. S. W., p. 14.
Crach. No. 94. Ostrea ligo, *The Spade or Hoe Oyster. From* ——. *Unique.* £10 10s. 0d.

This is an original Calonne specimen, No. 998 in the *Museum Calonnianum* of 1797, where it was described by Humphrey as *Ostrea ligo*. An obvious fault in the upper valve of the shell, repeated in the engraving, leaves no doubt that it is the original of Children's figure.

11. ***Placenta sella*** (Gmelin)

Genus : Placuna. Type : *Placuna sella* (Anomia sella *Linn.*).
Q.J.S., XV, p. 45, pl. III, figs. 96, 96*a*, *b*. April 1823. K. S. W., p. 16.
Crach. No. 86. Ostrea . . . (Placuna Ephippium *Soland*), *Saddle Shell. From Tranquebar* . . . . £3 3s. 0d.

12. ***Chiton tuberculatus*** Linné

Genus : Chiton. Type : *Chiton squamosus* (Idem *Linn.*).
Q.J.S., XV, p. 224, pl. VII, fig. 111. July 1823. K. S. W., p. 17.
Crach. No. 1. (Multivalves). Chiton . . . *Shagreen Chiton. From the West Indies* . . . . 8s.

As might have been expected in the light of recent knowledge, the Cracherode specimen figured by Children is actually *C. tuberculatus* Linné, which was so frequently mistaken for the Linnean *C. squamosus* by most authors of the nineteenth century, a circumstance fully discussed by Dodge (1952, p. 19, *et seq.*). This is a good example of the artist's faithful reproduction of the original specimen, for the girdle of the rather small Cracherode shell is dried and shrivelled exactly as shown in the figure—a blemish that a more gifted artist might have been tempted to make good.

13. ***Scutus antipodes*** Montfort Pl. 26, fig. 15*j*.

Genus : Parmaphorus. Type : *Parmaphorus australis*.
Q.J.S., XV, p. 227, pl. VII, fig. 115. July 1823. K. S. W., p.18.
Crach. No. 365. Patella . . . *The White Duck's Bill Limpet. From New South Wales* . . . . £1 1s. 0d.

14. ***Fissurella picta*** (Gmelin)

Genus : Fissurella. Type : *Fissurella nimbosa* (Patella nimbosa *Linn.*).
Q.J.S., XV, 228, pl. VII, fig. 117. July 1823. K. S. W., p. 18.
Crach. No. 382. Patella . . . *The Great Radiated Mask. From Falkland Island* . . . . 15s.

The Cracherode specimen selected for illustration is not *F. nimbosa* Lamarck, but *F. picta* (Gmelin), the first species on Lamarck's list and noted by Children to be his type. *F. nimbosa* certainly has dark radiations, but the shell is more conical and there are other differences in the apical opening and shell margin.

15. ***Scaphander lignarius*** (Linné)

Genus : Bulla. Type : *Bulla lignaria* (Idem *Linn.*).
Q.J.S., XV, p. 232, pl. VII, fig. 123. July 1823. K. S. W., p. 19.
Crach. No. 77. Bulla Lignaria *Linn. Wood-like Bulla, with its gizzard. From Weymouth. See* Transactions of the Linnean Society, *Vol.* 2 . . . . £1 1s. 0d.

It is of particular interest to record the presence of *S. lignarius* in the Cracherode collection, for a reference to Humphrey's paper of 1794 describing the gizzard of *B. lignaria* was given in the account of the Banks collection (Wilkins, 1955, p. 116), quoting the above entry in the Cracherode catalogue, showing the shell and gizzard to be a regular item of Humphrey's stock-in trade. These two specimens were mounted on the same tablet by Edgar Smith, and were exhibited with the British collection in the old shell gallery for many years.

16. ***Anostoma octodentatum*** Fischer de Waldheim Pl 25, fig. 10.

Genus : Anostoma. Type : *Anostoma depressum* (*sic*) (Helix ringens *Linn.*).

Q.J.S., XV, p. 238–9, pl. VIII, fig. 132. July 1823. K. S. W., p. 20.

Crach. No. 269. Helix (Lucerna antiqua) *Antique Lamp. From Brazil* . £8 8s. od.

An account of this species has already appeared above among Leach's figured specimens (p. 145), but it should perhaps be mentioned that the Cracherode shell was probably the only one available to Children in 1823, and best suited to Lamarck's description of his *A. depressa*, although not actually that species. Lamarck gives the Linnean *Helix ringens* as a synonym of *A. depressa*, but as already noted the former is now known to be synonymous with the much smaller *A. globulosa* Lamarck, the second of the two species cited in the *Histoire*, and of which a good figure is given by Crouch (1827, pl. 14, fig. 18).

17. ***Ceratodes cornuarietis*** (Linné)

Genus : Planorbis. Type : *Planorbis corneus* (Helix cornea *Linn.*).

Q.J.S., XV, p. 242, pl. VII, fig. 141. July 1823. K. S. W., p. 22

Crach. No. 275. Helix Cornu-Arietis *Linn. Banded Ram's Horn Land Snail. From the West Indies* . . . . . . 15s.

There seems to have been some confusion with this species, firstly by Lamarck, who cited this now well-known Ampullarid as the first species in the genus *Planorbis*, and secondly by Children, who after remarking in a footnote that *P. corneus* is " Lamarck's second species. His type, *P. cornu arietis*, Mr. Sowerby considers as an Ampullaria ", proceeded to give an unmistakable figure of the West Indian shell. Dubois (1825, p. 190) follows Lamarck in citing *cornuarietis* as his example of *Planorbis* without comment, but Crouch (1827, p. 29, pl. 15, fig. 10) gets the matter right by citing and figuring the true *Planorbis corneus* (Linné). Even as early as 1686 (Lib. II, f. 40) Martin Lister included *C. cornuarietis* among the exotic freshwater snails (*Cochleis fluviatilibus compressis*), giving an excellent figure of a specimen still in existence in the Sloane collection.

18. ***Nerita textilis*** (Gmelin)

Genus : Nerita. Type : *Nerita exuvia* (Idem *Linn.*).

Q.J.S., XV, p. 247, pl. VIII, fig. 152. July 1823. K. S. W., p. 24.

Crach. No. 341. Nerita . . . *Great Pied and Fluted Nerite. From Madagascar* . . . . 5s.

Children's figure is clearly the *N. textilis* Gmelin selected in error for the smaller and more closely ribbed *exuvia* Linné. Lamarck's references to the figures of Chemnitz for both these species are in order, and it appears from this and other misidentifications that Children was not always fully conversant with his subject.

19. ***Haliotis iris*** Gmelin (Ex. Martyn)

Genus : Haliotis. Type : *Haliotis iris* (Idem *Gmel.*).

Q.J.S., XV, p. 158, pl. VIII, fig. 158. July 1823. K. S. W., p. 25.

Crach. No. 231. Haliotis Iris. *The Iris Ear Shell in its native state. From New Zealand* . . . . £1 1s. od.

This species has already been mentioned as an example of Children's choice of available rather than suitable species for illustration, but this was particularly unfortunate as it was not in the genus when founded by Linné, and cannot stand as the type. (*K. S. W.*, p. 25).

20. ***Solarium maximum*** (Philippi)

Genus : Solarium. Type : *Solarium perspectivum* (Trochus perspectivus *Linn.*).

Q.J.S., XV, p. 252, pl. VIII, fig. 164. July 1823. K. S. W., p. 27.

Crach. No. 424. Trochus perspectivus *Linn. From China. A very large one of the species* . . . . £1 1s. 0d.

This Cracherode shell is included among the figured specimens with some reservation, Children's figure is not sufficiently clear to show the slight differences now separating the species of the genus *Solarium*. It is a fine large shell and probably the best available at the time, thus there is every reason to accept it as the original, particularly as *S. maximum* was not separated from the *perspectivum* complex until 1848.

21. ***Astraea imperialis*** (Gmelin)

Genus : Trochus. Type : *Trochus imperialis* (Idem Gmel.).

Q.J.S., XV, p. 253, pl. VIII, figs. 166, 166*a*. July 1823. K. S. W., p. 27.

Crach. No. 396. Solaris Imperialis. *The Imperial Sun Shell. From New Zealand. In its young state* . . . . . . £5 5s. 0d.

Naturally this fine New Zealand species was not known to Linné when he founded the genus *Trochus* in 1758, and as pointed out by K. S. W. (p. 27) Children's selection of Lamarck's first species must give way to the *T. maculatus* designated by Iredale (1912, p. 225). The Imperial Sun Shell has been a " collector's piece " since specimens were first brought to Europe by Captain Cook, and later figured by Martyn, Chemnitz, Donovan and others, the last named describing a specimen in the Leverian Museum with almost religious fervour (1823, pl. XI). According to Dell (1955. p. 16) this shell is now known as the Circular Saw Shell, a harsh and unpleasant name that almost demands a measure of priority in vernacular as well as scientific names. In a recent note on this species (Wilkins, 1954), the earlier specific name *heliotropium* Martyn 1784, so regularly used by Suter, Powell and other New Zealand authors was given preference, but as a petition to validate this and some more of Martyn's names is now before the International Commission they are only used as synonyms in this present paper.

22. ***Vasum turbinellum*** (Linné)

Genus : Turbinella. Type : *Turbinella cornigera* (Voluta turbinellus *Linn.*).

Q.J.S., XV, p. 257, pl. VIII, fig. 175. July 1823. *K. S. W.*, p. 28.

Crach. No. 315. Murex Diabolus (Voluta turbinellus *Linn.*) *The Devil Murex. From Madagascar* . . . . . . 8s. 6d.

This spiny group of shells, formerly included in *Turbinella* is now placed in the genus *Vasum* Röding by Thiele and other authors, while *Xancus* Röding (noted by K. S. W. as preceding Lamarck's *Turbinella*) is reserved for the smoother group of Chank Shells, of which *Xancus pyrum* (Linné) is the type.

23. ***Fusus colus*** (Linné)

Genus : Fusus. Type : *Fusus colus* (Murex colus *Linn.*).

Q.J.S., XV, p. 258, pl. VIII, fig. 178. July 1823. K. S. W., p. 29.

Crach. No. 324. Murex colus *Linn. Slender Crane. From China* . . £1 11s. 6d.

24. **Struthiolaria stramineus** (Gmelin)

Genus : Struthiolaria. Type : *Struthiolaria nodulosa* (Murex stramineus *Gmel.*).

Q.J.S., XVI, p. 49, pl. V, fig. 180. October 1823. K. S. W., p. 29.

Crach. No. 330. Murex . . . *Knotted Murex. From South Seas* . . £2 2s. 0d.

S. nodulosa Lamarck is a synonym of *stramineus* Gmelin 1791, which therefore becomes the type species.

25. **Tibia fusus** (Linné)

Genus : Rostellaria. Type : *Rostellaria curvirostris* (Strombus fusus *Linn.*).

Q.J.S., XVI, p. 52, pl. V, fig. 184. October 1823. K. S. W., p. 30.

Crach. No. 402. Strombus Fusus, *Linn. Great or Bellied Spindle in three different stages of growth. From Arabia Felix* . . £2 12s. 6d.

The figured specimen is an immature shell, probably the second growth stage, without the tooth-like projections on the outer lip of the adult particularly mentioned by Lamarck in his description. One can only conclude that Children could not locate the third specimen in Cracherode's series, or even the fully-grown shell now known to have been in the Sloane collection.

26. **Strombus latissimus** Linné

Genus : Strombus. Type : *Strombus latissimus* (Idem. *Linn.*).

Q.J.S., XVI, p. 53, pl. V, fig. 186. October 1823. K. S. W., 31.

Crach. No. 403. Strombus latissimus *Linn.* (Alatus latissimus) *Broad Winged Alatus. From Amboyna* . . . . £8 8s. 0d.

Children appears to have chosen this species mainly for its attractive form and markings, and also because there were only juvenile specimens of Lamarck's first species (*S. gigas*) available at the time.

27. **Phalium glaucum** (Linné)

Genus : Cassis. Type : *Cassis glauca* (Buccinum glaucum *Linn.*).

Q.J.S., XVI, p. 55, pl. v, fig. 188. October 1823. K. S. W., p. 31.

Crach. No. 51. Buccinum Bezoar (Cassida bezoar) *Bezoar Helmet. From Ceylon* . . . . 15s.

It is of interest to note the name *bezoar* in the Cracherode catalogue entry, for it was used by Humphrey in the Calonne catalogue in 1797, in French and English (p. 19, No. 310—*Le Bézoire —Bezoar—Buccinum glaucum* Linn.), the colour of the shell having some fancied resemblance to the greyish bezoar stones voided by certain mammals, and so greatly in demand for use in early medicine as an antidote to poison. Lamarck also uses the term *Casque Bezoar* in the *Histoire*.

28. **Harpa major** Röding

Genus : Harpa. Type : *Harpa ventricosa* (Buccinum harpa *Linn.*).

Q.J.S., XVI, p. 58, pl. V, fig. 193. October 1823. K. S. W., p. 32.

Crach. No. 34. Buccinum Harpa *Linn.* (B. Testudo Soland) (Harpa Testudo). *The Tortoiseshell Harp. From Madagascar* . 15s.

The Linnean *Buccinum harpa*, as noted by Lamarck, was a composite species that included practically all the Harp Shells, several distinct species being regarded only as varieties by

Bruguière, Dillwyn and others. Hanley (1855, p. 251) considered *H. nobilis* to be the typical form, but Melvill (1916, p. 26), while appreciating Hanley's decision suggested that as *H. ventricosa* was the most frequent species it might be considered the best exponent of the Linnean *B. harpa* and of the genus *Harpa*. Melvill's paper showed that Lamarck's genus *Harpa* and several of his species were predated by Röding in 1798. Thus the well-established *H. ventricosa* and *H. articularis* were to be known as *major and davidis* respectively, but it is noticed that Thiele (1931, p. 344) still retains the *H. ventricosa* Lamarck and Nicklés (1950, p. 113) *H. rosea* Lamarck and not the *H. doris* Röding.

In 1945 Winckworth dealt ably with the type species of the Boltenian genera, selecting *H. nobilis* Gmelin (*pars*) as the type of the genus *Harpa* (p. 140), to which Children's selection must presumably give way. This was after all only dictated by availability, for Lamarck's type, the rare *H. imperialis* Lk., was not represented in the Museum collection until some years later. The figured Cracherode shell is easily recognized by a definite fault in the shell, faithfully reproduced by the artist.

29. ***Tonna perdix*** (Linné)

Genus : Dolium. Type : *Dolium perdix* (Buccinum perdix *Linn.*).

Q.J.S., XVI, p. 59, pl. V, fig. 194. October 1823. K. S. W., p. 32.

Crach. No. 30. Buccinum Perdix *Linn.* (Dolium perdix). *The Partridge Tun. From China* . . . . £1 1s. 0d.

K. S. W. (p. 32) and Children himself stated that the *Buccinum galea* Linné is the type species of *Dolium*, the former from their fuller knowledge and the latter because it was Lamarck's first species in the *Histoire*, but this again was not available to Children and in any case would have made a less attractive or distinctive figure than the one chosen for illustration.

30. ***Terebellum terebellum*** (Linné)

Genus : Terebellum. Type : *Terebellum subulatum* (Bulla terebellum *Linn.*).

Q.J.S., XVI, p. 67, pl. V, fig. 205. October 1823. K. S. W., p. 34.

Crach. No. 516. Voluta . . . (Bulla terebellum *Linn.*). *The Truncated Olive. From New Caledonia* . . . . . . 10s. 6d.

The Linnean *B. terebellum* is the type species by tautonomy, Lamarck having changed the name to *subulatum* in the *Histoire*, although he had used the former in the *Prodrome* in 1799.

The above item completes the list of Cracherode shells so far recognized as those figured by Children in 1823, and as previously stated there are others among the Sloane shells, notably *Q.J.S.*, XV, pl. II, figs. 72 & 80, pl. III, fig. 105, pl. VII, fig. 112. There is every indication that further efforts would reveal a much larger series of figured specimens, including material from the smaller donations recorded in Children's manuscript catalogue of the mollusca collections.

The next period to consider is from 1824, when J. E. Gray started to publish his papers largely based on Museum material, to 1828, when William Wood produced the *Supplement* to the *Index Textaceologicus*, in which many figures of new species appeared for the first time. Before proceeding to a discussion of these, it may be of use to add a brief note on the work of the latter author, said by Swainson (1840, p. 380) to be " now the most learned bookseller in London for works connected with natural history ".

Born in 1774, William Wood eventually entered the medical profession and practised in London until 1815, when he changed to bookselling and publishing, carrying on his business from No. 428, Strand, London. He was elected Fellow of the Linnean Society in 1798 and Fellow of the Royal Society in 1812. His works were of a semi-popular nature, dealing with general zoology, conchology and entomology, but the strict adherence to the Linnean system caused them to be less useful than they really deserved. Wood's first conchological publication was the *General Conchology* of 1815 (reissued in 1835 with new title page) of which only the first volume appeared, the second being abandoned from lack of public support. This was followed by the first edition of the *Index Testaceologicus* in 1818, a second edition very much enlarged and improved in 1825, and finally a reprint plus *Supplement* in 1828.

Swainson (1840, p. 380) reports on Wood's *Index* as follows : " These figures are executed with great neatness, and often with beauty. The arrangement, however, is that of Linnaeus, and the synonyms often short and incorrect. Mr. Wood, Jun., by whom the plates were executed, has made every endeavour to procure original specimens for deliniation ; but when the species could not be found in London cabinets, he has very properly copied the original figure, quoted by Linnaeus, or by his followers. A supplement has since been added ". Swainson gives the date of the first edition (1818), in which the figures are anything but neat, and mostly lack beauty, all in fact having a decidedly amateurish appearance. A minute " W. W." engraved at the base of the plates indicates that William Wood had rather unsuccessfully endeavoured to become artist as well as author and publisher. The plates in the later enlarged editions of 1825 and 1828 (the first six of which were engraved by J. Sowerby and the rest by Wood, Jun.) are of a distinctly higher standard, and it seems therefore that Swainson was reporting on the 1825 edition rather than the 1818 as stated. The figures are particularly good in the *Supplement*, where they have proved to be faithful reproductions by comparison with the original specimens.

Used by itself this addition to the *Index* is very misleading, and has frequently led to names being credited to Wood instead of Gray and vice versa. It was arranged on the same Linnean plan as the larger work, which was principally a compilation, the names appearing under the column headed " *Linnean names* ". In the *Supplement* most of the names were, as the author says, wholly unknown to Linné, " yet as the arrangement is Linnean, the head could not well be dispensed with without injury to the body ". It does not seem to have occurred to him to place the authorities after the names, if other than Linnean. Wood does, however, give a few indications under the heading " *Synon. & Ref.*" but these refer principally to the various collections from which the shells were figured, the names attached to them being adopted. Most of them, he says, were from specimens in the British Museum, so that one gets a mixture of names which had to be sorted out by reference to a list of Lamarckian names adapted to the *Index* at the end of the book, but even then there were naturally a number unknown to Lamarck (indicated in italics) for which no proper authority was given.

Much of the confusion created by Wood's *Supplement* was cleared up by Hanley in his 1856 edition of the *Index Testaceologicus*, in which fairly full references to the original authors were given, but even so names were attributed to the owners of specimens labelled in manuscript, rather than to Wood as first publisher—*Mactra recurva* for instance (p. 201), is attributed to Gray presumably because it was taken from a manuscript name on a Museum tablet. Many of Mawe's manuscript names are treated in the same way by Hanley, usually referred to as " Mawe. I. T ", and thus it is that a number of names improperly attributed to Mawe are to be found in Carpenter's *Report* of 1863 (p. 524) immediately following his eulogy on the excellence of Hanley's edition of the *Index.*

The difficulties encountered in the use of Wood's *Supplement* were of course greatly simplified by the advent of Sherborn's indispensable *Index Animalium* (1801–50), but caution is still necessary when dealing with the combined efforts of Gray and Wood.

J. E. Gray's early monograph on *Cypraea* (1824–28), has already been quoted and there is no doubt that Cracherode shells were included among those referred to " Mus. Brit.", but as several collections were often quoted (Mus. Brit., Sowb., Nost., etc.) it is not easy to select individuals, except when " Mus. Brit." occurs alone, as in the case of the *Cypraea aurora*, or Orange Cowry (*Zool. J.*, p. 150) where it is stated that " This shell is considered a very great rarity without a hole in the side ; this hole is formed by the natives of the Friendly Islands, where it constitutes one of the ornaments worn by their chiefs ". The only Orange Cowry then available was the Cracherode specimen (No. 204) from Otaheite, which certainly has a hole in the side and shows evidence of considerable wear ; it was purchased by Cracherode for eight guineas.

A most important paper was published by J. E. Gray in the *Annals of Philosophy* for February 1825, with the following title and superscription :

> A List and Description of some Species of Shells not taken Notice of by Lamarck.
>
> By John Edward Gray Esq. M.G.S.
>
> (To the Editors of the Annals of Philosophy)
> British Museum. Jan. 10, 1825.
>
> GENTLEMEN,
>
> In the following list I have referred several species, which have not been taken notice of by Lamarck, to his genera, and have described some new ones that are contained in the collection in the British Museum, where most of the species are exhibited with the names, here adopted, attached.
>
> Your obedient servant,
> J. E. Gray.

Several Cracherode specimens were described as new species in this early paper, namely *Lucina Childrenae*, *Cytherea crassa*, *C. pinguis*, *C. Solanderii*, *C. aurisiaca* and *Crenatula folium.* Only three of these specimens have so far been located—*L. Childrenae*, *C. Solanderii* and *Crenatula folium.* *Cytherea pinguis* and *aurisiaca* are certainly represented in Gray's own collection, and were it not for the rather large numbers usually placed on the shells by E. W. Gray, it might have been possible for the Cracherode shells to have become mixed with J. E. Gray's own specimens, but no trace of any numbers can be seen.

The three existing Cracherode type specimens described by Gray in 1825 are listed below :

1. **Miltha childrenae** (Gray) *Lectotype.* Pl. 24, fig. 6.

Crach. No. 216. Tellina (Acerata inaequivalvis) *White Acerata with unequal valves, and a gilded extender. From Brazil. Unique* . £5 5s. 5d

There is no doubt that this is the original specimen, the " gilded extender " referred to being merely a rim of yellowish periostracum still adhering to the outer margin of the under valve of the shell, clearly shown in Pl. 24, fig. 6 (natural size).

First Description

J. E. Gray, *Zoological Journal*, **1**, p. 221, June 1824.

The first mention of this species appeared in rather an odd manner in the chapter on reversed shells in *Mr. Gray's Conchological Observations* printed in the above journal, where the author mentions two specimens of a new *Lucina* in the Tankerville collection, adding a footnote saying " I call this new shell *Lucina Childrinae* [*sic*], it is distinguished from all other Lucinae by being unequivalved, and approaching nearly in form to the Cytherea exuleta ; there is another specimen in the British Museum ".

This footnote can hardly be called a good description, although actual specimens were referred to, but adequate search in available catalogues and among existing collections of known purchasers of the Tankerville shells (i.e. Broderip, Lincoln, Leathes, Goodall and the British Museum) have failed to reveal the whereabouts of the two specimens first mentioned and it therefore seems advisable to rely on Gray's second and proper description applied to the Cracherode shell which certainly formed part of his original material.

It is pleasant to pause here to note that even at this early date J. E. Gray had already developed his propensity for naming shells after the ladies of his acquaintance, such names as Georginae, Sophae, and Emmae falling easily from his pen, and there is no doubt that he intended the name of this new species as a compliment to the daughter of his friend, a kindred spirit, who was said by the author to have " a well-selected cabinet " of her own (*Zool. J.*, **1**, p. 144).

Second Description

J. E. Gray, *Annals of Philosophy*, **9**, p. 136, February 1825.

> " *Lucina Childrenae.* Testa suborbiculata inaequivalvibus alba subantiquata ; tenussime radiata substriata : long. 3. unc. Brazil, *Humphreys* nob."—*Zool. J.* **1**, p. 221.

Reference to the above description was made in the Tankerville catalogue, which was apparently published shortly afterwards, but with the date of the *Annals of Philosophy* shown as 1824, and the masculine termination to the name.

G. B. Sowerby, *Tankerville Catalogue*, p. 11, No. 206, 1825.

> *Lucina Childreni* (a.b.) Gray, in *Annals of Philosophy* (1824) 2 specimens : one being the reverse of the other."

According to a priced copy of the catalogue in the British Museum (Natural History), once the property of J. E. Gray, and said by him to be a copy of the one kept in the room for the use of intending purchasers, these two shells were priced by Sowerby at ten guineas the pair, the same *pro rata* price paid by Cracherode many years earlier. No figure of Gray's new species was published until January 1826, when G. B. Sowerby included the interior of a single valve in Part XXVII (*Lucina*) of the *Genera of Recent and Fossil Shells.* It is quite likely, although the origin of the specimen was not mentioned, that it was a valve of one of the Tankerville shells, for it is known that Sowerby took the opportunity to note and figure many of the novelties in that collection for future use, while preparing the sale catalogue early in 1825.

The species was figured for the second time by Wood in the *Supplement* of 1828 (*Tellina*. p. 3, pl. 1, fig. 1), again spelt *Childreni* and referred to the British Museum, with the original locality " Brazil ".

Since Humphrey's day this locality had always been accepted as correct for the species, then as now a fairly rare shell. P. P. Carpenter, however, threw doubt on the locality " Brazil " when noting American West Coast shells in the Tankerville catalogue in his *Report* of 1863, where he makes the following categorical statements : (1) under the Tankerville specimen No. 206 :

> " *Lucina Childreni* (described by Gray in *Ann. Phil.* 1824 ; v, also *Zool. J.* vol. i, 1825, pp. 221–2.
>
> " There is no authority for the statement that it came from Brazil. The Br. Mus. specimens are from ' Mus. Cracherode ', and are probably West Coast. The only known locality is Cape St. Lucas."

And again (2) on p. 620, No. 113 :

> " *Miltha Childreni* (A few fresh specimens correct the habitat ' Brazil ', previously assigned to this extremely rare and remarkable shell, which appears to be a gigantic *Felania*)."

These statements led Dall to record the species as a native of the Gulf of California and not Brazil (1901, p. 812), and it was not until four years later that he was enabled to correct his statement, having received a specimen of *Miltha childrenae* from Pernambuco, collected by Carvalho " thus confirming Gray's original locality " (1905, p. 111), a locality which originated from the Cracherode collection via George Humphrey in the 1790's.

As noted by Dall, Carpenter's record of Cape San Lucas was a clear case of misidentification, for a comparison between specimens from that place named by Carpenter, and the one from Pernambuco proved them to be " two very similar but distinct species ", the rarity of the shells being responsible for the delay in discovering the mistake. To the Cape San Lucas shell Dall gave the specific name *xantusi*, in honour of its discoverer, John Xantus, a Hungarian employee of the United States Government. He spent eighteen months on Cape San Lucas as a tidal observer from 1860 to 1861, taking the opportunity while there to collect specimens of all groups of marine animals for the Smithsonian Institution, thus adding zest to " his solitary and what would otherwise have been monotonous life " (Carpenter, 1863, p. 617). Steinbeck & Ricketts, however (1941, p. 61), make it fairly clear that when not assiduously collecting and watching the tides, the life of Xantus was far more colourful and less monotonous than the good Dr. Carpenter would have imagined, and that there is substantial living evidence to prove his sojourn on the Cape to be something more than a legend to the present inhabitants.

Xantus made a real contribution to knowledge of the marine fauna of the Gulf of California, adding at least sixty new molluscan species to those already in the great Mazatlan collections gathered together by Frederick Reigen, an enthusiastic Belgian who filled his house with decomposing molluscs to such an extent that the neighbours had to call in the police ! (Carpenter, 1863, p. 540). The same author tells us (p. 617) that " During the period Mr. Xantus was out of employment owing to the derangements of the war, a portion of the duplicates were offered for sale, and will be found in some of the principal collections." It was probably at this time that the single Cape San Lucas specimen of *M. xantusi* in the Museum collection was obtained by Hugh Cuming, duly labelled " California " with Cape St. Lucas written inside the shell in pencil.

The sub-genus *Miltha* was erected by H. & A. Adams for the reception of *M. childrenae* in 1857 (**2**, p. 468), later authors, including Thiele (1935, p. 866) giving it full generic rank.

2. ***Sunetta solanderii*** (Gray) *Holotype.*

J. E. Gray, *Annals of Philosophy*, **9**, p. 137, 1825 (*Cytherea*).

Crach. No. 170. Pectunculus . . . (Venus Hians *Soland*). *Thick Lettered Clam. From China* . . . . 10s. 6d.

There is little need to repeat Gray's original description, except to note that he recorded the use of the name *hians* by Solander and Humphreys in manuscript. The shell must at some time have been labelled with this earlier name, for so it appears in Wood's *Supplement* (pl. 2, *Venus*, fig. 11) in 1828, obviously drawn from the Cracherode type specimen described by Gray.

3. **Crenatula folium** Gray *Holotype*. Pl. 24, fig. 7.

J. E. Gray, *Annals of Philosophy*, **9**, p. 139, 1825.

In this description Gray tentatively suggested a new genus *Dalacia* for his *Crenatula folium*, apparently based on the slightly different position of the umboes of the shells. The original descriptions of genus and species were as follows: "CRENATULA. This genus may be divided into two sections, which may perhaps hereafter be considered as genera by the same character as separates *Mytilus* from *Modiola*, 1. *Testa quadrata umbonibus anterioribus*, which includes the species or rather varieties mentioned by Lamarck. 2. *Testa ovata umbonibus sub anterioribus* (Dalacia) containing the following: *Cre. folium*. Testa albida radiata compressa; latere antico rotundato, postico alata. Brand's *Journal* XV, t. 2, f. 81, figura pulcherrima. Vulsella folium. *Humph*. Mus. Cracherode."

This Cracherode specimen (No. 93), already referred to among those figured by Children in 1823 (No. 7), originated from the Calonne collection, having been purchased from George Humphrey between 1797 and 1799 for the sum of eight guineas. It was described by Humphrey on page 44 of the *Museum Calonnianum* (No. 821), under the genus *Vulsella* in 1797.

The shell has naturally become faded and somewhat damaged during the years, the faint rays of violet only now being discernible on the lower valve of the shell, where it was attached to the Museum tablet. Considering the friable nature of even fresh specimens of any *Crenatula*, the Cracherode shell is in tolerably good condition. It was figured for the second time by Wood in 1828 as *Mytilus folium* (pl. 2, *Mytilus*, fig. 4) "Locality unknown." Reeve figured the species from excellent specimens in the Cuming collection (1858, *Crenatula*, sp. 5*a*, *b*) as a new species, *C. flammea*, but this is certainly the *C. folium* Gray, having the same white, hair-like radial markings not to be seen in any other species of *Crenatula* so far examined. Reeve figured a shell he called *C. folium* (pl. II, sp. 7) but this was only a pale form of *C. picta* (Gmelin) from the Red Sea, shown correctly in the previous figure on the same plate.

Reeve's figures of *C. flammea*, from New Caledonia, show the true colour of *C. folium* Gray, and his locality, now adopted for the type, is further confirmed by specimens so marked in the J. J. MacAndrew collection. This locality is particularly acceptable as Humphrey is known to have had a supply of shells from New Caledonia, including several species of very characteristic *Placostylus*.

Gray included his genus *Dalacia* (so uncertainly proposed in 1825) in his *List of Genera and Types* in 1847, with *D. folium* as the type species (p. 200, No. 375), but few authors appear to have bothered about it since, except to quote it as a synonym of *Crenatula* (H. & A. Adams, 1857, p. 528).

Cracherode Specimens Figured by William Wood in the Supplement *to the* Index Testaceologicus 1828

The following series of type and figured specimens are of species said to be found on the Museum tablets, and not included in the 1825 edition of the *Index*. A few have already appeared in previous lists, but these must of necessity be mentioned again to indicate the further use of the Cracherode shells.

1. **Mactra striatula** Linné

Mactra subplicata Lamarck. *I. T. Supp.*, p. 4, pl. 1, *Mactra*, fig. 6. Tranquebar.

Crach. No. 58. Mactra striatula *Linn*. *Half striated Mactra*. *From Tranquebar* . . . . 10s. 6d.

2. ***Mactra alata*** Spengler

Mactra alata, I. T. Supp., p. 4, pl. 1, *Mactra*, fig. 7. Locality unknown.

Crach. No. 221. Trigonella fimbriata, *white fringed Trigonella. From Brazil* . . . . 10s. 6d.

It appears that if localities were not mentioned on the Museum tablets Wood simply recorded them as unknown, whereas if he had consulted the Cracherode or Children manuscript catalogues he would have found many of them correctly entered therein ; *M. alata* is a well-known Brazilian species.

3. ***Trapezium sowerbyi*** Hidalgo. Pl. 22, fig. 3*b*. *Holotype of* T. angulata (Wood).

Chama angulata. I. T. Supp., p. 6, pl. 2, *Chama*, fig. 1. New Holland.

Crach. No. 35. Chama oblonga *Soland. Purple oblong chama. From Pulo Condore* . . . . £3 3s. 0d.

This species has been discussed on p. 150 above, but is included here because Wood gave it the new name *angulata* (non-Lamarck), although he had previously figured it as *oblonga* Linné (1825, p. 42, pl. 9, fig. 14), probably copied from Chemnitz ; how he obtained the locality New Holland is not known, for Pulo Condore, recently confirmed as a genuine record, was clearly shown on the tablet and in both manuscript catalogues.

4. ***Voluta subnodosa*** Leach

Voluta subnodosa. I. T. Supp., p. 9, pl. 3, *Voluta*, fig. 1. Locality unknown.

Crach. No. 475. Voluta . . . *Great Undulated Volute. From the Straits of Megellan. The only perfect one known* . . . £10 0s. 0d.

This species was described and figured by Leach in 1814 (**1**, p. 24, Tab. VIII) also without locality, and as recorded elsewhere (Wilkins, 1953, p. 41) was described from a specimen in the Sloane collection, presumed to have come from the Straits of Magellan. Leach said he knew of only two specimens, one in the British Museum and the other belonging to Mr. Bullock. No mention was made of the very fine Cracherode shell which should have been available to him, clearly catalogued and localized by E. W. Gray in 1801.

5. ***Tonna ringens*** (Swainson)

Buccinum ringens, I. T. Supp., p. 11, pl. 4, *Buccinum*, fig. 1. Locality unknown.

Crach. No. 46. Buccinum (Cassida Auris-Leonis), *Lion's Ear Helmet. Fom Sibo, an Island near Panama* . . . . . £5 5s. 0d.

Long confused with the less globular *T. pomum* (Linné) this species was described as *Cassis ringens* by Swainson in 1822 (*appendix*, p. 4) from the collection of Mrs. Bligh, widow of a certain Captain Bligh. No figure or locality was given with this description, thus the Cracherode shell was the first to appear as an example of the new species in this country. The island of Sibo mentioned in the catalogue entry was evidently an early spelling of Coiba, an island west of the Bay of Panama, a known locality for *T. ringens* (Tomlin, 1927, p. 165).

This and other localities given correctly by Humphrey, and so little used by his followers, show once again that these early records should not be ignored.

6. ***Phalium semigranosum*** (Lamarck)

Buccinum semigranosum, I. T. Supp., p. 11. *Buccinum*, fig. Locality unknown.

Crach. No. 52. Buccinum . . . *Quaker Helmet, From New Holland* . £2 2s. 0d.

Tryon (1885, p. 275) incorrectly attributes the name of this species to Wood instead of Lamarck (1822), but gives the correct locality South Australia and Tasmania, thus confirming Humphrey's " New Holland ".

7. ***Strombus galeatus*** Swainson (Juvenile) *Paratype of* S. galea *Wood.*

Strombus galea junior, *I. T. Supp.*, p. 14, pl. 4, *Strombus*, fig. 14. Locality unknown.

Crach. No. 408. Strombus . . . *Grooved Wing Shell. Fom Acapulca* . £5 0s. 0d.

This Cracherode shell was mentioned some time ago in a note designating a lectotype of *S. galeatus* Swainson (Wilkins, 1953*b*, p. 290), selected from a Broderip specimen, formerly labelled *S. crenatus* Sowerby (1825). Apart from Wood, several collectors and authors seemed unaware of Swainson's description of 1823, notably C. B. Adams (1852, p. 111) who gave preference to Wood's *S. galea*, while accrediting the name *S. galeatus* to J. E. Gray. The range of the species appears to be on the West Coast of Central America from Mazatlan to Peru, only fragments being found in the Bay of Panama by Adams in 1850. In 1823 Swainson said that several full-grown specimens had recently been brought from Peru, by whom he does not state, but it is quite possible they arrived through ordinary commerce, or even from the voyage of Humboldt and Bonpland, who visited Peru and Acapulco in the early 1800's. It is equally uncertain who may have collected the Cracherode specimen of *S. galeatus* from Acapulco previous to 1799, but evidence points to Joseph Dombey, the French botanist who was an early visitor to the Panama province, arriving at Peru in 1778. Tomlin (1927, p. 167) records the species from the islands of Coiba and Gorgona.

8. ***Strombus thersites*** Swainson *Lectotype.*

Strombus Thersites, *I. T. Supp.*, p. 14, pl. 4, *Strombus*, fig. 17. Locality unknown.

Crach. No. 404. Strombus (Alatus marmoratus) *Marbled Wing Shell. From New Caledonia. Unique* . . . . £6 6s. 0d.

Little need be said of this specimen as it was discussed in the paper designating it the lectotype of *S. thersites* Swainson (Wilkins, 1951, pp. 238–9), but it is of interest to recall that Wood's figure of 1828 was the first and only figure of the Cracherode shell to appear until the halftone reproduction accompanying the above paper.

9. ***Haliotis ruber*** Leach *Holotype.*

Haliotis rubra, *I. T. Supp.*, p. 26, pl. 8, *Haliotis*, fig. 1. New Holland.

Crach. No. 233. *Great Broad Ear Shell. New South Wales* . . . . £1 1s. 0d.

This specimen has already occurred above among the species described by Leach, but Wood's misspelt *rubra* is to be noted, an error repeated by Hanley in his revised edition of the *Index* in 1856 (p. 232).

10. ***Padollus scalaris*** Leach *Holotype.*

Haliotis tricostata, *I. T. Supp.*, *p.* 26, pl. 8, *Haliotis*, fig. 2. Locality unknown.

Crach. No. 240. *The Broad tuberculated Ear Shell from Hainan* . . . 8s.

Wood's name seems to be merely an error for the *H. tricostalis* Lamarck, although he places it in his Lamarckian index in italics, thus indicating that it is not to be found in the *Histoire*, but whatever his intention, it is only a synonym of *P. scalaris* Leach.

11. ***Stomatella sulcifera*** Lamarck

Haliotis sulcifera, *I. T. Supp.*, p. 26, pl. 8. *Haliotis*, fig. 3. Van Dieman's Land.

Crach. No. 241. Haliotis . . . *Clouded Haliotis. From Van Dieman's Land* . . . . £1 1s. 0d.

In addition to the foregoing list of Cracherode shells figured by Wood in 1828, there are several others referred to by J. E. Gray in two of his papers published at a later date, in both of which he created new genera and species based mainly on Museum material. The first of these papers appeared in the *Magazine of Natural History* for 1837, (Art. VII, pp. 370–6) with the following title :

> Art. VII. A Synoptical Catalogue of the Species of certain Tribes or Genera of Shells contained in the Collection of the British Museum and the Author's Cabinet ; with Descriptions of the new Species. By John Edward Gray, F.R.S., &c. President of the Botanical Society of London.

This paper dealt largely with *Mactra*, *Spisula* and *Lutraria*, several of the species referred to originating from Cracherode specimens, although not always indicated as such by the author, who was notoriously lax in giving proper details in his descriptions. Not the least confusing habit was to attribute names to himself rather than to another, as first publisher, thus at least three of the species to be listed below, attributed to Gray in the paper of 1837, are in reality Gray's manuscript names first published by Wood in 1828.

1. ***Mactra aspersa*** Sowerby *Holotype of* M. tenera *Wood.*

Mactra tenera, I. T. Supp., p. 4, pl. 1, *Mactra*, fig. 4. Van Dieman's L.

Crach. No. 61. Mactra tenera. *Thin Mactra. From Maria Island Van Dieman's Land . . . A New Species* . . . £1 1s. 0d.

" *Spisula tenera* Gray ", *Mag. Nat. Hist.* (New Ser.), **1**, p. 373, 1837.

Although the Cracherode specimen remains the type of Wood's *M. tenera* it is only a synonym of *M. aspersa* Sowerby described in the Tankerville catalogue in 1825 (App. p. ii). The type came to the Museum in the Broderip collection much later, and was eventually mounted on the same tablet as the Cracherode shell, correctly labelled *Mactera aspersa* Sowerby. It is perhaps surprising to note that although Gray was quite aware of Sowerby's earlier name for this species, and quoted it in his notes on *Spisula*, he still gives Wood's later name priority (attributed to himself), in direct contradiction to his ideas on that subject expressed in the paper on *Cypraea* already noted above (1828, p. 68). The subject of priority is again referred to by Gray in 1847 (p. 129), where he says it is needless for him to dilate on the importance of attending to the law of priority " which I have always advocated, for that is now almost universally allowed, yet I am quite prepared for hearing several conchologists complain of the changes which the observance of this just law will force them to make ". While appreciating J. E. Gray's great services to zoology, particularly in the building up of the Museum's great zoological collection (which he made the greatest in the world) it is to be regretted that in his published work he did not always observe the law he so strongly advocated. This neglect presents almost daily problems to those who are obliged to study some of the results of his fifty years of almost feverish activity in all branches of zoology.

2 (*a*) ***Labiosa lineata*** (Say) *Holotype of* Mactra cyprinus *Wood.*

Mactra cyprinus I. T. Supp., p. 4, pl. 1, *Mactra*, fig. 1. Peru. 1828.
Lutraria Cyprinus Gray. Gray, *Mag. Nat. Hist.* (New Ser.), **1**, p. 375, 1837.

This thin and fragile shell has a long history, and although one valve was " holed " when forced off its tablet by blast during World War II, it is still essentially complete and recognized as the specimen purchased by Humphrey from the Calonne collection in 1797, and sold to C. M. Cracherode for four guineas soon afterwards. This purchase was duly entered in the latter's personal catalogue, followed by the letters " M.C.", the description only being copied into the Museum catalogue by E. W. Gray in 1801 (pl. 25, fig. 9).

Crach. No. 59. Mactra Cyprini. *Carp's Mouth Mactra. From Peru ? Unique* . . . . £4 4s. od.

There is no doubt that Wood's figure, quoted above, was adapted from the Cracherode shell, for the pronounced radial rib and the rather widely gaping valves are shown to advantage, a feature that led Gray to place the species in the genus *Lutraria*, where it appears in a separate section in his paper of 1837, quoted as *Lutraria cyprinus* Gray, with a reference to Wood's original figure of 1828. In 1840 Gray created a new genus *Cypricia* for these Mactroid shells with the gaping valves, which first appeared in the *Synopsis of the contents of the British Museum* (p. 149), a *nomen nudum* until confirmed in his *List of Genera* published in 1847 (No. 565, wrongly dated 1837) with the genus *Labiosa* in use to-day as a synonym. Needless to say, the Cracherode shell was duly labelled *Cypricia cyprina* at some time between 1840 and 1847 by J. E. Gray's assistant Dr. W. Baird, who worked so hard curating the Museum collections from 1840 until his death in 1872.

This Cracherode specimen was figured for the second time by Reeve in the *Conchologia Iconica* as *Mactra cyprinus* Gray, but without locality (1854, *Mactra*, sp. 37), *Cypricia cyprina* appearing only as a synonym. Reeve refers the specimen to " Mus. Cuming ", whereas it should have been " Mus. Brit.", there being no doubt as to the origin of the figured specimen. It exhibits a scar caused by damage to the shell during life (not shown by Wood) but noted on the tablet by E. A. Smith some years later, when re-labelling the specimen *Labiosa lineata* Say, and said by him to be the cause of the unusually wide gape to the shell (pl. 25, fig. 9). Incidentally the question whether to favour the genus *Labiosa* Moller or *Cypricia* Gray was discussed by E. A. Smith as recently as 1914 (p. 150), but although he inclined toward the use of the latter, no alteration was made to his label.

Humphrey did right to query the locality " Peru " for according to Dall (1889, p. 65), the species occurs on the East Coast of the United States from New Jersey south to Cuba, while Abbott (1954, p. 449) records it from North Carolina to Texas—" uncommon in most areas of its range ". Maxwell Smith (1951, p. 65) extends this range further south to Brazil.

3 (*b*). **Labiosa lineata** (Say) *Holotype of* Mactra recurva *Wood. Pl.* 25, *fig.* 12.

Mactra recurva I. T. Supp., p. 4, pl. 1, *Mactra*, fig. 2. Locality unknown.
Lutraria recurva Gray. Gray in *Mag. Nat. Hist.* (New Ser.), **1**, p. 375, 1837.

Crach. No. 60. Mactra recurva. *Recurved Mactra. From Brazil* . . £1 1s. od.

While agreeing that the shell originally named *Mactra recurva* by Humphrey in 1797, figured by Wood in 1828 and referred to by Gray in 1837 is somewhat smaller than the contemporary *Mactra cyprinus*, it is rather surprising that neither of these three authors noticed that the two shells were merely growth stages of one and the same species, for Conrad had already shown them to be synonymous in 1831, a circumstance overlooked by Gray. However, he allowed the two species *recurva* and *cyprinus* to form the separate section *Lutraria* to which the name Cypricia was given later. When the six genera of Mactridae enumerated by Gray in 1837 were eventually increased by him to eighteen in 1853 (pp. 33–4) Wood's *recurva* was selected to represent the genus *Cypricia*, in the place of the *Mactra anatina* used in the earlier *List of Genera* (1847, No. 565).

Humphrey appears to have been more fortunate in his locality on this occasion, for as noted above *Labiosa lineata* certainly occurs in Brazil.

The second paper by J. E. Gray in which appeared a few specimens in connexion with Wood's *Supplement* of 1828, was published in the *Analyst* for July 1838 (pp. 302–9), and as it is of some importance, often quoted, but seldom seen, it may be of interest to print the title and superscription in full :

" Catalogue of the species of the genus Cytherea, of Lamarck, with the description
of some new genera and species.

By John Edward Gray. F.R.S.
of the Zoological Department of the British Museum.

British Museum 1st June, 1838.

Dear Sir,

As you have been kind enough to express a wish that I should send you a zoological paper for insertion in your useful journal, I have great pleasure in enclosing you a monographic revision of the Genus *Cytherea* of Lamarck, which I have found necessary to divide into several genera, and to which I have added the description of the new species which are in the collection of the British Museum, or in my private cabinet.

Yours, very truly,
John E. Gray."

To the Editor of the " Analyst ".

This paper contains about twenty new species distributed among the eight genera into which Gray divided the original genus *Cytherea* Lamarck ; thus we find the *Cytherea Solanderii* of 1825 moved to *Meroe*, with the name misspelt *Solandri*, an error repeated by future authors using the paper, notably Deshayes (1853, p. 44, *Cuneus Solandri*) and Jukes-Brown (1914, p. 66, *Sunetta Solandri*) ; *Venus damaoides* Wood becomes *Trigona donacoides* Gray (p. 304), and a new species of *Circe* appears under the specific name *Crachrodii*, apparently an error for *Cracherodei*. Although the type of this species is a Cracherode shell no mention was made to that effect in Gray's description, from which it may be concluded that by this time (1838) the Cracherode collection was very much a part of the Museum's general collection and seldom referred to again individually, " Mus. Brit." or " B. M." becoming legion for specimens from all sources.

In this, as in other papers, Gray mentions very few collectors or localities, but as stated in his superscription, all the specimens were in the British Museum or in his private cabinet, " My collection " appearing quite frequently. However, most of the type specimens from the Gray collection are in the Museum, many having been segregated by various workers after its presentation by Mrs. Gray in 1874 " who had formed it during the many years of a happy married life " (Günther, 1912, p. 28). Figured specimens marked " Gray Cab " by Wood in his *Supplement* are still occasionally recognized among this material, much of it collected during the various voyages and travels undertaken by J. E. Gray's contemporaries.

Apart from *Sunetta solanderii* (Gray) already referred to, there are only two other Cracherode shells so far recognized from the rather scanty descriptions, and these may be briefly noted as follows :

1. ***Tivela damaoides*** (Wood) *Holotype.*

Venus Damaoides, Wood, *I. T. Supp.*, p. 6, pl. 2, *Venus*, fig. 17. East Indies.
Trigona donacoides Gray, *The Analyst*, **8**, p. 304.

Crach. No. 176. Pectunculus . . . *Flat Thick Variegated Satchel Clam.*
From East Indies . . . . 5s.

The discrepancy in these two names must have been due to an error in transcribing a manuscript label by Wood, for it is certainly the same shell as described by Gray, and must take the earlier name. Gray ignores *damaoides*, referring his *Tivela donacoides* to *Venus donacoides* Gray, " Wood. Supp. t. 2. f. 17." although no such name appeared in the *Supplement*. The species was quoted by Deshayes (1853, p. 47), and Jukes-Brown (1913, p. 267) as *Tivela damaoides*, attributed to Gray on each occasion. The latter author agreed with Hanley 1856 (p. 204) that it was in all probability little more than a variety of *T. Ponderosa* (Koch), from the Red Sea.

2. ***Circe crachrodii*** (Sic) Gray *Holotype.* Pl. 25, fig. 14.

J.E. Gray, *The Analyst*, 8, p. 307, 1838. *Unfigured.*

Crach. No. 169. Pectunculus . . . *Oval variegated Clam. From Guinea* . 5s.

The original spelling of this species has already been noted but it may be added that Deshayes corrected it to *Circe Cracherodii* Gray without comment in his *Catalogue of the Conchifera* (1853, pp. 92–93).

The above species concludes the lists of type and figured specimens used by various authors during the first half of the nineteenth century, when the Cracherode collection became finally distributed among the large general collection, having ceased for some time to be a separate entity. Some specimens were even mounted on tablets with others of the same species from quite different collections. Before leaving this period, during which Children and Gray accomplished so much in rehabilitating and adding to the collections, it may be of interest to return for a moment to 1824 to record a difference of opinion between William Swainson and J. E. Gray, which was given a certain amount of publicity in the early numbers of the *Zoological Journal* (1824–25) and closely associated with a Cracherode specimen of *Thiara cancellata* Röding, then known as *Melania setosa* Swainson.

Thiara cancellata Röding

Crach. No. 472. Turbo . . . (Spirilla spinosa). *Freshwater spiral spined Shell. From Admiralty Island. New Guinea.* . . £5 5s. od.

Melania setosa was described by Swainson as a new species in April 1824 (p. 13), with particular notice of the curious bristle-like structures said to be embedded into the hollow spines adorning the upper part of the whorls of the shell. In his further observations, Swainson refers to these as " a formation altogether unprecedented amongst this class of animals ", the bristles being " rooted as it were into the body of the shell ". Gray read the description of this new species with evident surprise, for in an article sent to the *Zoological Journal* soon afterwards (June, 1824, p. 254) the following paragraph appears from his pen—" Now it happens that there are two specimens of this ' new and most extraordinary ' shell in the British Museum, one of which was in the Cracherode collection, No. 472, and named by Humphreys ' *Spirilla spinosa*, fresh water spiral spined shell, from Admiralty Island, New Guinea,' and another presented by Dr. Leach ; both have to my knowledge been exposed to the public view for upwards of three years, and I am very much inclined to believe that the *Buccinum aculeatum* of Lister's Mantissa, t. 1055. f. 8. is intended for this shell ; but from the name of Humphreys, I some time ago named the specimen in the Museum *Melania spinosa*."

Gray goes on to say there is little difference from *Melania amarula* except that in the species under discussion the spines are tubular with the periostracum drawn in and enclosed in the tube, the processes of which form the " bristles ". He then proceeds to figure the two museum specimens (*Zool. J.* pl. VIII, figs. 6, 7, 8) with a more detailed one of the periostracal processes. The first figure is the Cracherode shell No. 472 (which had lost its bristles) and the second Dr. Leach's more perfect specimen, from which the enlargement of the bristles was taken. Gray cites *Neritina corona* (*Clithon coronata*) as another analagous species, in which the spines are tubular, at any rate in the earlier growth stages. In the next number of the *Zoological Journal* (October, 1824, p. 399) Swainson replied to Gray's criticism in a letter to the editors dated 15th August 1824, couched in truly Swainsonian style, in which he counters Gray's suggestion that the shell was not new to science, or that it presented nothing extraordinary in its construction. He was particularly incensed at Gray's remark that he had already named the specimen in the Museum collection, for " until now, naturalists have considered a species to be *new*, which has not been described or figured in any printed book. But, according to the singular doctrine of this writer, we are bound to make the tour of all the museums—public or private—native or continental, and consult all their manuscript catalogues, before we venture to say we are describing a new object. *Melania setosa* appears to exist in the British Museum, and to be named in the manuscript catalogue. The shell may be in a dozen collections, and have a dozen manuscript names, for ought I know to the contrary. What follows? Why, that the shell is not new to science ; although it has confessedly never been described, or publicly recorded ".

Swainson then continues, much in the same tone, suggesting that in supposing Lister's figure (tab. 1055, fig. 8) to represent *Melania setosa*, Gray was flouting the authority of Linnaeus, Gmelin, Martini and Lamarck, " who had all quoted this identical figure as representing *M. amarula*, Lam ". This was due to the fact that Lister's figure (which is certainly Swainson's shell), in common with most early figures, did not show the bristles peculiar to the species, but not absolutely necessary for its identification. In Lister's specimen the bristles were broken off, thus causing most early authors to consider it a variety of *Melania amarula.* Even the Cracherode shell figured by Gray was practically denuded of bristles, a feature that drew another volley from Swainson, who was obviously too annoyed to realize that it had been used merely to illustrate the hollow spines, which are quite well shown, while Leach's shell (well drawn in Gray's fig. 7) shows the bristles to better advantage. These two specimens were the only ones available to Gray at the time, but sufficient to prove his point.

In the following January Gray replied to Swainson's attack, producing further evidence to prove his statements, quoting at least four early authors who had figured or described the species. Swainson had objected to Gray's analogy of *Neritina corona* as a tubular spined species, citing five original descriptions from " the greatest naturalists who have written on the subject " including Chemnitz, to disprove it. Unfortunately he did not seek further than these authors' specific characters, for in his full description of the shell now known as *Clithon coronata* Leach, Chemnitz clearly stated that the spines " are inwardly hollow like a reed ", a point which Gray did not hesitate to bring home, in addition to other references overlooked by his opponent.

Nothing more appeared in the *Zoological Journal* from the pens of Gray or Swainson on this subject, but in 1833, when the latter again published a description and excellent figure of his *Melania setosa* in the *Zoological Illustrations* (Ser. 2) the text to plate 1 of *Melania* concludes with the following paragraph—" We were unwillingly drawn into a controversy respecting this shell some years ago. Our sentiments, in every thing that regards the shell itself, are unchanged. Not so with respect to the individual. The civilities and attentions we have since received from Mr. Gray, leave us to regret, very sincerely, that such a discussion should have ever taken place ".

The importance of this discussion has of course receded with the years particularly since the introduction of many of the names used in the *Museum Boltenianum* of 1798 into the current nomenclature, sponsored by Sherborn & Sykes (1906) and Dall (1915), wherein the shell formerly known as *Melania setosa* Swainson, appears as *Thiara cancellata*, clearly referred to the figure of Chemnitz (**9**, t. 134, figs. 1220, 1221, 1786) and here attributed to P. F. Röding as first publisher.

As already stated Cracherode specimens were seldom, if ever, referred to as such after 1838—one or two specimens were certainly figured by Reeve in the *Conchologia Iconica*, and marked " Mus. Brit.", notably the *Lutraria cyprinus* already recorded, and a juvenile specimen of *Cymbium tessellata* (Lamarck) figured in the monograph of that genus (1861, sp. 10*b*, *c*), and catalogued by E. W. Gray in 1801 as follows :

Crach. No. 480. Voluta Haustrum *Soland.* (Melo . . .) *The Coronated spotted Melon. From Japan* . . . . . . £5 5s. 0d.

This is the *Voluta haustrum* of the *Portland Catalogue* (1786, No. 3054) referred to a figure in Martini & Chemnitz (1777, fig. 781) and said to come from China. Lamarck quotes the same figure in his original description, also that of Lister (t. 797, fig. 4), of which the original is still in the British Museum. Maxwell Smith (1942, p. 47) records the species from the Indian Ocean and China.

5. LIST OF CRACHERODE SPECIMENS ORIGINALLY IN THE CALONNE COLLECTION

The Calonne collection has of necessity been referred to several times in the preceding pages, and was also briefly mentioned in connexion with the Banks collection (Wilkins, 1955, p. 77). As the Cracherode shells included a number of specimens described in the *Museum Calonnianum* in 1797 (purchased by George Humphrey at the sale and resold to Cracherode) it seems appropriate to include a list of these with some further notes on its famous contemporary, particularly as a study of the manuscript catalogues revealed a number of Calonne specimens hitherto unknown to exist in the British Museum collections. Jackson (1937, p. 333) records a few Calonne specimens in the Manchester Museum, bearing Humphrey's labels, and once the property of William Swainson (purchased by his father in 1815), but beyond these, and one or two shells from the Broderip (*Ex.* Tankerville) collection, little was known of the whereabouts of the Calonne shells distributed by public auction in 1797. A very full description of the Calonne catalogue, or " Specification " as the anonymous author called it, was given by Iredale in 1937, (pp. 408–19). This included an exhaustive list of all the authors who had partially or fully adopted the many new specific and generic names found therein, even suggesting, in direct opposition to Dall and other experts, that some further action should be taken to rescind Opinion 51 of the International Commission (1912). This completely rejected the use of the *Museum Calonnianum* as a basis for any nomenclatorial work. Nevertheless, as explained by Iredale, the printed Calonne catalogues were fairly widely circulated, so that many of the names have come to be accepted in the works of later British and continental authors.

The main interest here, however, is with actual Calonne specimens which can be linked with those in the Cracherode collection. The descriptions given in E. W. Gray's manuscript catalogue of 1801 (copied from Cracherode's personal catalogue and Humphrey's labels) agree with the Calonne entries in most respects, showing that Humphrey used these entries as a basis for labels supplied with Calonne specimens sold by him after 1797. Sixteen Calonne shells have so far been recognized and are listed below, preceded as usual by the modern name in bold face type, followed by the Cracherode and Calonne catalogue entries under their respective numbers. One or two of these may have appeared in previous lists, but are repeated here for easy comparison.

1. ***Murex (Pteronotus) pinnatus*** Swainson

Crach. No. 320. Murex (Triplex pinnatum) *Finned triple ridged Triplex. From Java* . . . . £3 3s. 0d.

Calonne No. 741. Triplex Pinnatum—*La Coquille à Nageoire—Finned—Java*—Murex tripterus *Born. Extremely scarce.*

It is of interest to note that *Triplex* was one of the genera used by George Perry in the *Conchology* of 1811, and marked as " now first invented and adopted by the Author of this work "—even the Linnean genus *Patella* was marked in the same way ! The *M. tripterus* Born does not apply to this species, which was first described by Swainson in 1822 (p. 17), but is frequently attributed to Wood (1828).

2. ***Murex (Alipurpura) acanthopterus*** Lamarck Pl. 26, fig. 15*c*.

Crach. No. 321. Murex (Triplex pungitium) *The Stickleback Triplex* . . £3 3s. 0d.

Calonne No. 742. Triplex Pungitium—*Les Piquants—Stickleback—very rare.*

While it is undesirable to quote hitherto unknown names for established species, it would be useless to conceal those that appear under a printed catalogue number, which can be checked and recognized, so that now and again exceptions are made for the sake of historical sequence, bearing in mind that Calonne names are not available unless validated by a later author. Dillwyn printed a number of Calonne names in his synonymies, but he does not seem to have recognized Humphrey's *M. pungitium.*

3. ***Echinochama arcinella*** (Linné) Pl. 26, fig. 15*b*.

Crach. No. 39. Chama arcinella *Linn.* (Gryphus spinosus), *Thorny Heart Gryphus. From Martinique* . . . . . . £3 3s. 0d.

Calonne No. 1020*a*. Lacinia spinosus *var. a. White outside, yellow within—Le Coeur Epineaux—Thorny Heart—Martinique—Chama arcinella Linn.*

In the Museum copy of the Calonne catalogue the genus *Lacinia* (p. 53) is altered by the author (Humphrey) to *Gryphus*, under which name the specimen was sold to Cracherode, the Linnean name being given preference by E. W. Gray. Sherborn (1902, p. 440) quotes "'Gryphus. Humph. 1797' Scudd. I cannot find this word", from which it appears Scudder was using an altered copy and Sherborn an unaltered one, for he later records "Lacinia G. Humphreys, Mus. Calonne 1797" without comment (p. 509). Two of these altered copies of the Calonne catalogue are known; one in the British Museum (Nat. History) mentioned above (once the property of J. E. Gray, with his MSS. notes), and another in the Manchester Museum, recorded by Jackson (1937, p. 337), in which the alterations noted by him coincide almost exactly with those in the former. A third, privately-owned copy, is completely free from alterations.

"Gryphus *Humph. MSS.* 1797" and "Licinia. Humphrey 1797" were both mentioned as synonyms of *Chama* and *Arcinella* by Gray in 1847 (Nos. 657, 658), but with a characteristic error in the spelling of *Lacinia*, and to make matters worse, these two numbers were referred to *Licina* (*Cyclophorus*), in the index.

4. ***Pseudochama radians*** (Lamarck)

Crach. No. 41. Chama . . . (Lacinia contraria) *Contrary furbelowed Shell. The beak winds to the left. From Martinique* . . £1 1s. 0d.

Calonne No. 1016. Lacinia contraria—*La Contraire—Contrary—The beak of this species winds to the left contrary to the rest.*

In his *Conchological Observations* (1824, p. 222) J. E. Gray refers to reversal among the attached and inequivalved shells, noting that Lamarck divided his *Chamae* into "those which have the beaks turned to the right, and those which have them turned to the left; when the fact is that they are only attached by the right or left valve".

There are several species of these apparently sinistral or "mirror images" among the Chamidae, the anatomy and prodissoconchs varying sufficiently for the creation of a separate genus *Pseudochama* by Odhner in 1917 (p. 28). Tucker Abbott (1954, p. 393) refers to *P. radians* as the Atlantic Left-handed Jewel Box, which occurs from Southern Florida to the West Indies, the only species to be found in Eastern America. *Pseudochama exogyra* Conrad and *P. echinata* Broderip are Pacific species which also have the beaks turning the opposite way to the true Chamas.

5. ***Labiosa lineata*** Say Pl. 25, fig. 9.

Crach. No. 59. Mactra Cyprini. *Carp's Mouth Mactra. From Peru? Unique* . . . . £4 4s. 0d.

Calonne No. 838. Tellina Cyprini—*La Gueule de Carpe—Carp's Mouth—Extremely scarce. The country is unknown. Perhaps Peru.*

This species has already been fully dealt with, but it may be noted that with the passing of the years the vernacular name has changed to the Smooth Duck Clam, its congener *L. plicatella* Lamarck being known as the Channeled Duck Clam, thus distinguishing them from the heavier *Spisulas* or Surf Clams of the Eastern Coast of America.

6. ***Mytilus chorus*** Molina

Crach. No. 71. Mytilus Peruvianus. *The Peruvian Muscle. From Acapulca. Uncoated and polished* . . . . . £5 5s. 0d.

Calonne No. 786. Mytilus Peruvianus—*La Peruvienne—Peruvian—Peru. Extremely scarce.*

This fine large species has always been popular in collections, particularly when polished, the Cracherode shell being of a fine lustrous purple and still in excellent condition. The shells were largely used by the early natives of South America for domestic purposes, the edges frequently being sharpened for use as very efficient razors. A medium-sized specimen so sharpened is in the Sloane collection, brought from the Straits of Magellan in the early part of the seventeenth century. *M. chorus* was recorded by d'Orbigny from Chili and Peru (1847, **5**, p. 648).

7. ***Crenatula folium*** Gray Pl. 24, fig. 7.

Crach. No. 93. Ostrea . . . (Vulsella folium) *White Leaf elegantly marked Vulsella, faintly rayed with violet. From . . . Unique* . . . . £8 8s. od.

Calonne No. 821. Vulsella Folium. *La Feuille d'Arbre Blanche—White Leaf—The country of this very singular and delicate species is not known. Its form and texture is extremely curious, and it is the only one we know of.*

For a full description of this specimen see p. 161 above.

8. ***Pedum spondyloideum*** (Gmelin)

Crach. No. 94. Ostrea Ligo. *The Spade or Hoe Oyster. From . . . Unique* . . . . £10 10s. od.

Calonne No. 998. Ligo—*La Houlette—Spade, or Hoe—This is the only individual of this very singular species that we recollect to have seen. It seems to constitute a link between the Ostreae and Spondyli, or is perhaps a new Genus, of which species* 997 *may be considered as another kind. Its native country is unknown.*

It is not surprising that this shell was considered such a rarity in the old days, living as it does immured in blocks of madrepore, fixed by a strong byssus, with only the tips of the valves showing above the surface. The first good figure and description was published by Chemnitz in 1785 (8, figs. 669–70), with the name *Ostrea spondyloidaea*. Humphrey, who frequently referred to Chemnitz in the *Portland Catalogue* in 1786, ignored or was not yet aware of the name finally established by Gmelin in 1791 (p. 3335, 109), based on the figures of Chemnitz. However, Humphrey was not far wrong in his suggestion of a connecting link between *Ostrea* (which then included *Pecten*) and *Spondylus*. Pedum was placed between *Semipecten* and *Spondylus* by Thiele (1935, p. 809), the shells of the former—although thinner—greatly resembling the orbicular juvenile stage of *Pedum*.

The finest figures of the species (*in situ* in a coral block) were given by Quoy & Gaimard (1835, pl. 76, figs. 15–21). Mature and juvenile shells were included, together with several anatomical figures showing details of the *ocelli* or " eyes ", so characteristic a feature of the mantle edges of *Pecten* and *Spondylus*.

9. ***Solenotellina violacea*** (Lamarck)

Crach. No. 186. Solen violaceus *Soland.* (Trulla violacea) *Violet Solen. From Tranquebar* . . . . £3 3s. od.

Calonne No. 807. Solen violaceus—*Le Baquet—Violet Tray—Tranquebar*—Solen violaceus Soland.

The name *violaceus* can be traced further back to the *Portland Catalogue* of 1786, where it it appears on p. 161, No. 3514 : " *A very fine* Solen violaceus, *S, from China—extremely scarce* ", and it is evident that the name was adopted by Lamarck from this or the Calonne catalogue. Humphrey may have obtained his specimens from Tranquebar, but the Portland locality seems more likely, for the species is synonymous with the *Soletellina adamsi* Reeve, named in MSS. by Deshayes in the Cuming collection, from specimens collected on the Island of Negros in the Sulu Sea. The Cracherode specimen has had the yellowish-green periostracum removed to show the fine violet colouring, but in all other respects it exactly matches Reeve's figure and type specimen.

10. ***Spondylus americanus*** Hermann

Crach. No. 190.	Spondylus armatus. *Large scarlet and white armed Spondylus or hinged Oyster, with long palmated spines. From St. Domingo*	£4 4s. od.

Calonne No. 1021. Spondylus—*Huître à Charnière—Hinged Oyster.* Armatus *var. K. White and scarlet, the spines long and palmated. L'Arme—Armed —St. Domingo*–Spondylus Gaedaropus *var. Linn. & Solander.*

The Cracherode *Spondylus* have always proved a great attraction since they were first exhibited in the early 1800's, but it is only recently that they have been recognized as original Calonne specimens, described in some detail by Humphrey in the *Museum Calonnianum* (pp. 54–55). There were in all twenty-six varieties of his *S. armatus*, each listed under a letter of the alphabet, the four specimens purchased by Cracherode being varieties *b*, *k*, *v* & *x*. The prices ranged from three to five guineas each, which may not seem so exorbitant, even allowing for changing values, when it is learnt that shells of *Spondylus americanus* in as fine condition as the Cracherode specimen are still considered very rare, and may cost as much as fifty dollars in the American market to-day (Abbott, 1955, p. 56).

There is no need to repeat the catalogue entries relating to the three remaining specimens, entered consecutively by E. W. Gray in 1801 (Nos. 191–3) but 193 is the particularly attractive group of four juveniles of varying colours still on exhibition. The locality given for these Calonne shells, St. Domingo, is of interest, for it shows them to be contemporary with those examined by Hermann when first describing the species in 1781. There is no doubt they were in some other great continental collection before being purchased by the Prince of Calonne and ultimately sold in England in 1797.

For many years this well-known species had been attributed to the *S. americanus* of Lamarck (1819, p. 188), but in 1898 Dall dealt very thoroughly with the recent and fossil *Spondylus* occurring from Florida to Cape Hatteras, deciding that *S. echinatus* Martyn 1784 should replace the later *americanus* Lamarck. This was accepted until 1912, when Hedley and Pilsbury discovered a paper in an old German periodical by Hermann[1] in which the author described the difference between the Mediterranean and American forms of *Spondylus.* He gave each a name, with a brief Latin description, based on the form of the ligament. The paper was sent to the editor in the form of a letter, part of which, translated from the German, runs as follows :

> " Honoured Friend,
>
> Here are a few shells for the naturalist, they seemed new to me a short time ago when I classified my collection by the system of Linné with the help of the best known authors. Should some of it be already published, please put my not knowing about this down to the dearth of literature and lack of time to read all of it.
>
> *Spondylus*
>
> The collector has good reason to distinguish the so-called spined oysters which come from Malta, from those which come from America and are brought via St. Domingo to France, but I do not remember seeing the differences described anywhere. Even the excellent Herr v. Born does not mention it in his *Ind. Mus. Caes. Vindob.* I am quite sure that both varieties are in the collection of Vienna. The difference between them consists of an elongation of the lower shell posterior of the " lock ", which is said by Linné to be flat or sawn off, and is completely smooth and without a groove. Whereas in the American there is a groove in the centre, and the *black cartilage*, situated in the median dell seems to extend along it.

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[1] Jean Hermann (1738–1800). French physician and professor at Strasbourg, author of *Tabula affinitatum animalium* 1783.

I should therefore call the first

Spondylus (*mediterraneus*) valva inferiore pone cardinem abrasa integra

and the other

Spondylus (*americanus*) valva inferiore pone cardinem abrasa sulco cartilaginiferor exarata."

Since Herman referred to Linné in his paper it seems odd that he did not use *S. gaedaropus* for the Mediterranean form, but nevertheless, in separating the Eastern and Western forms he was well in advance of many later authors, notably Dillwyn (1817, pp. 209–10), who applied the Linnean *gaedaropus* indiscriminately to all species of *Spondylus* irrespective of locality. He even suggested that the distinctive *S. regius* Linné was " probably nothing more than one of the almost endless varieties of *S. gaedaropus* ". Actually the last-named species is far less variable than some species of the genus, and can usually be separated even without the aid of the closed ligamental pit mentioned by Hermann, an excellent character in distinguishing some of the more puzzling features of certain forms of *Spondylus* with doubtful localities.

While admitting that Hermann was speaking rather collectively in his description of *S. americanus* in 1781, there is really no doubt of the species referred to, for the port then known as St. Domingo (now Port-au-Prince, capital of the Haytian Republic) was within reach of localities where it still occurs, but perhaps not quite in the " *grande quantité* " noted by Chemnitz (1784, p. 79). Fulton, however, who had accepted Hermann's name in 1915 (p. 356) later suggested that as no adequate description or reference to a figure was given, the *S. americanus* Hermann 1781 was simply a *nomen nudum*, and should be replaced by the next oldest name, *S. dominicensis* Röding 1798, but since a name, brief description and reasonable locality were given by Hermann his name is still favoured in current literature.

In 1856 Reeve created a number of species from the various forms of *S. americanus* found in the Cuming collection, most of which were listed as synonyms of that species by Dall in 1898 (p. 760), when he maintained that with one exception (*S. gussoni* Costa) all forms of *Spondylus* from the West Indian region were variations of one and the same species. Fulton (1937, p. 38) and Perry & Schwengel (1955, p. 45) allowed two species—*S. americanus* Hermann for the typical unattached white and red form, with the long foliated spines, and *S. ictericus* Reeve for the attached and more variably coloured, shorter spined shells so common to the West Indies. This seems reasonable enough, for long series of shells appear to fall into two groups, but it would perhaps be preferable to refer to Reeve's *ictericus* as a related form rather than a distinct species, particularly as clusters of shells may be composed of individual examples of this and other so-called species, all living within the compass of a few inches.

Florida seems to be the headquarters of the typical form of *S. americanus* Hermann, fine specimens measuring five to six inches in length being recorded by Johnson (1911, p. 11) from ten fathoms off Rock Island, one of the Anclote Keys. Fine unattached specimens occur in about five fathoms at Tarpon Springs, where they are brought up by the sponge fishers, frequently covered with sponge, thus preserving the long and delicate spines from damage (Perry & Schwengel, 1955, p. 45). It was probably from similar localities that the Calonne shells were collected and taken to the French port of St. Domingo for shipment to Europe in the eighteenth century.

14. ***Spondylus aurantius*** Lamarck

Crach. No. 194. Spondylus Hystrix. *Porcupine Spondylus. From China. A young one* . . . . £2 2s. od.

Calonne No. 1029. Spondylus Hystrix *var a. White and orange, mottled with black.*

15. ***Spondylus auriantius*** Lamarck

Crach. No. 195. Spondylus Hystrix *var. Orange variety of Porcupine Spondylus. From China* . . . . £6 6s. od.

Calonne No. 1029. Spondylus Hystrix *var. a. White and orange mottled with black.*

These two specimens are typical forms of *S. aurantius*, a fairly common Indian Ocean species recorded by Lamy from Mauritius, India, China, Philippines and the Seychelles (1938, p. 193). As with other species of the genus, *S. aurantius* appears in the literature under names too numerous to mention. It was frantically over-described by Reeve in the *Conchologia Iconica* monograph of 1856, his *S. butleri, castus* and *spectrum* are all synonyms of *S. aurantius* Lamarck, the characters of two or even all three of these so-called species sometimes occurring in a single specimen, but always there are the black or brown spots on the umbos, noted by Humphrey. Many of Reeve's and even Chemnitz's names were given credence by Lamy in his rather disappointing *Révision* of 1938, in which one might have expected some of these obvious errors of judgment to have been rectified.

16. ***Spondylus gaedaropus*** Linné

Crach. No. 200. Spondylus gaedaropus *Linn.* (S. purpureus) *Purple Spondylus. From the Mediterranean* . . . . . . £1 1s. od.

Calonne No. 1023. Spondylus Purpureus *var. c. having a foliated under-valve* .5. . *Le Pourpre—Purple—Mediterranean*—Spondylus Gaedaropus *var. Linn. & Soland.*

This specimen is a typical *gaedaropus*, rich in colour, with a touch of orange in the foliations of the under-valve and is the first of six specimens listed by Humphrey under No. 1023, all of which are apparently the same species but differing slightly in colour and formation. Six further species are noted (Nos. 1024–1029) but most of these are evidently colour forms of *S. aurantius*, except *S. hystrix* (No. 1029) already stated to be a typical *aurantius* Lamarck.

6. CONCLUSION

The above entry concludes the detailed lists of Cracherode specimens and also the account of the Cracherode collection as a whole. This has been shown to be of greater importance than formerly realized, and to include specimens still extant from the very early days when the British Museum, if not exactly in its infancy, had yet to become one of the greatest institutions of its kind in the world. From a study of the collection it has also been possible to trace in some measure the rapid growth and development of a serious interest in the mollusca in this country from the end of the eighteenth century to the middle of the nineteenth century, a period during which Conchology and Malacology came to be recognized as important sciences, rather than pastimes for the mere dilettante.

Cracherode certainly looked on his shell collection simply as a series of attractive objects acquired for his own enjoyment, but having a true " nobility of mind " he made sure that his carefully selected treasures would be available for the use and enjoyment of others, a gesture that has been fully justified. The Cracherode shells have formed an integral part of the exhibited and study collections for over 150 years, and have provided material and given inspiration to many early workers and collectors.

7. A BRIEF BIOGRAPHY OF C. M. CRACHERODE M.A., F.R.S., 1730–1799

Clayton Mordaunt Cracherode was born at Taplow, Buckinghamshire, on the 23rd June 1730, the only son of Colonel Mordaunt Cracherode who had command of the Marines on Anson's voyage round the world. His mother was Mary, daughter of Thomas Morice, paymaster to the British forces in Portugal, but contrary to these strong military connexions, it was the father's wish that his son Clayton should make the Church his profession. He entered Westminster School in 1742, and went on to Christ Church Oxford in 1746, taking his B.A. in 1750 and M.A. 1753, later holding the Curacy of Binsey, near Oxford, but " neither sought nor obtained preferment ".

On the death of his father in 1773, Clayton Cracherode inherited an ample fortune, said to be several hundreds a year in landed property, and nearly one hundred thousand pounds invested in the " sweet simplicity of three per cents ". (Edwards, 1870, p. 419.) He also became the owner of the Manor of Great Wymondley, held from the Crown subject to the service of presenting to the King the first cup from which he drinks at his coronation. The apprehension of being called upon to perform such service caused no little uneasiness to the new owner, who is said never to have visited his Hertfordshire estate, and at no time travelled further than to the University of Oxford.

Cracherode was a man of extremely regular habits, and was accustomed for forty-one years of his life to go every day from his home in Queen's Square, Westminster, first to Elmsly's the booksellers in the Strand, and then to Tom Payne's by the Mews-gate, a literary coffee house where he would meet and talk to friends with similar tastes to his own. Though Cracherode was heard often to complain of the high prices asked for books and prints his purchases continued unabated until his death in 1799, when his library contained no less than 4,500 volumes, all remarkable for their rareness or excellence of impression, together with many portfolios of exquisite prints and drawings which included the finest examples of Rembrandt and Dürer.

Coins, medals, gems and minerals " worthy of an imperial cabinet " also formed a part of the collection which it was the principal aim of his life to amass. Modesty seems to have been the keynote of Cracherode's " noiseless " career, for he was wont to refer to his great possessions as mere " specimen collections ", and yet his bequest of them to the British Museum eclipsed most of the earlier gifts made after 1753. Although he " carefully avoided the bustle and grandeur of public life " Cracherode enjoyed the company and conversation of a small circle of friends, some of whom " were not less enobled by their talents and their virtues, than by their exalted rank and well-supported dignities ". To these, who included his two greatest friends—Shute Barrington, Bishop of Durham, and Cyril Jackson, Dean of Christ Church—his house was always open when they wished to consult his books, prints, coins and medals.

Mr. Cracherode was elected a Trustee of the British Museum in 1784, and a Fellow of the Royal Society in the following year. His conscientious nature is exemplified in a small manuscript notebook (B.M. Add. 47611), in which he recorded some of the happenings at the Trustees' meetings, at which he appears to have been a constant attendant. It covers the period 1784 to 1796 and is devoted largely to carefully written lists of his fellow Trustees, and the all too frequent changes brought about by death. Staff changes were also recorded, together with outstanding acquisitions, principally books and antiquities, although there is one note of a collection of shells, insects, etc. made by Lord Charles Cavendish, presented in 1784.

Unlike many private notebooks of the period, this one is rather disappointingly free from any personal opinions, being just a plain and straightforward record of attendances and business transacted, but even so it contains many interesting notes relating to the early history of the Museum while in Montague House.

Although so fond of books, Cracherode's own literary efforts were confined to a single set of Latin verses printed in the *Carmina Quadragesimalia*, composed by students of his house at Oxford in 1748, a fact not overlooked by contemporary lampooners, to whom his collecting propensities and love of fine volumes were well known, through his frequent visits to the literary coffee house at the Mews-gate, where many of their best shafts were prepared. The following lines by Mathias were quoted from the *Pursuits of Literature* (1794), in the *Gentleman's Magazine* for April 1799, and again by Edwards (1870, p. 421), but in the later version Doctor Dibdin replaces the " Doctor Dewlap " of the original :

" Or must I, as a wit, with learned air,
Like Doctor Dewlap, to Tom Payne's repair,
Meet Cyril Jackson and mild Cracherode there?
' Hold! ' cries Tom Payne, ' that margin let me measure,
and rate the separate value of the treasure '
Eager they gaze. Well, Sirs, the feat is done
Cracherode's Poetae Principes have won! "

It is recorded in the same issue of the *Gentleman's Magazine* that the " mild Cracherode " paid his last visit to the parlour of the old bookshop on the Monday before his death " in a manner that could not escape the observation of its owner, to whom, as to his father, he had been so liberal a customer ". He died on the following Friday (25th April) and was buried in the East Cloister of Westminster Abbey, attended only by his friends Lord Spencer and the Bishop of Durham.

Cracherode's considerable fortune passed to his sister Ann Cracherode, then nearly eighty years of age (d. 1802), and as already stated the whole of his library and collections were bequeathed to the British Museum.

In 1806, not long after Cracherode's death, a certain amount of unpleasantness was caused by the theft of a number of his rarer prints from the Museum by Robert Dighton, the caricaturist, who rather foolishly sold them to dealers to whom they were well-known, the prints being of so rare a nature that the purchasers became suspicious. Most of them were recovered later, but the episode led to the dismissal of William Beloe (1756-1817), who was then in charge of the Cracherode prints and books. The story goes that Dighton insinuated himself into the good graces of the easygoing *bon-vivant* custodian by sending him delicacies for his table. Dibdin of course made lighthearted use of the theft of these treasures in his *Bibliographical Decameron* (1817, **3**, pp. 326 *et seq.*) and prints a dramatic version of the happenings when related to Cracherode and some of his cronies, imaginatively staged in the " shades below ".

There is no doubt as to the extraordinary value of the Cracherode books, prints, coins and minerals, but little was recorded regarding the collection of shells in the few biographical notices available. It is therefore felt that the present paper will have remedied this deficiency and rendered some slight extra service to the memory of the man whose generosity did so much to strengthen the foundations of our National Museum.

Only one likeness of C. M. Cracherode was ever taken, and that only in pencil by Edridge, by order of Lady Spenser, but even this was not allowed to be engraved during his lifetime. Engravings from it were eventually published by T. F. Dibdin in the third volume of the *Bibliographical Decameron* in 1817 (facing p. 327) and by William Clarke in his *Repertorium Bibliographicum* in 1819, (facing p. 11). The line drawing appearing on the cover and title page of this *Bulletin* was adapted from the latter by the present author.

8. REFERENCES

ABBOTT, R. T. 1954. *American Seashells.* xiv + 541 pp.; 100 text-figs.; 40 pls. New York. 4°.

—— 1955. *Introducing Sea Shells.* 64 pp.; 19 text-figs.; 8 pls. New York. 4°.

ADAMS, C. B. 1852. *Catalogue of Shells collected at Panama, with notes on their Synonymy. Station and Geographical Distribution.* vii + 334 pp. New York.

ADAMS, H. & A. 1853–58. *The Genera of Recent Mollusca; arranged according to their organization.* 3 vols.; 138 pls. London.

ALLAN, J. 1950. *Australian Shells.* xix + 470 pp.; 112 text-figs., 86 pls. Melbourne.

" B." 1828. Observations on the Causes that have retarded the progress of Natural History in this Country . . . etc. *Loudon's Mag. Nat. Hist.* **1** : 14–17 : 181–184.

BAKER, H. B. 1923. Notes on the radula of the Neritidae. *Proc. Acad. Nat. Sci. Philad.* **75** : 117–178; 16 pls.

BECK, H. J. LE. 1799. An Account of the Pearl Fishery in the Gulf of Manar in March and April 1797. *Asiatic Researches. Trans. Soc. Bengal,* **5** : 393–411. (See also *Annual Register,* **41** : 380–391. 1799.)

BIRCH, J. Q. 1955. Resurrection of Ancient Names. *Minutes Conch. Club. Calif.* No. 152 : 2–3.

BOLTEN, J. F. 1798. *See* Röding 1798.

BRITISH MUSEUM. 1809. *Synopsis of the Contents of the British Museum. 2nd edition.* xxxii + 2; 96 + 13 pp. London.

—— 1827. *Ibid. 25th edition.* 2 + 188 pp. London.

—— 1840. *Ibid. 42nd edition.* iv + 370 pp. London.

BRITISH MUSEUM (NATURAL HISTORY). 1903–40. *Catalogue of the Books, Manuscripts, Maps and Drawings in the British Museum (Natural History).* 8 vols. London. 4°.

—— 1904. *The History of the Collections contained in the Natural History Departments of the British Museum.* **1** : xvi + 442 pp. *Minerals* by L. Fletcher : 343–442.

—— 1906. *Ibid.* **2** : *Birds* by R. Bowdler Sharpe : 79–515. *Mollusca* by E. A. Smith : 701–730.

—— 1912. *Ibid.* **2** : *Appendix* by A. Günther : 109 pp.

CARPENTER, P. P. 1855–7. *Catalogue of the Reigen Collection of Mazatlan Mollusca in the British Museum.* xvi + 552 pp. London.

—— 1864. A Supplementary Report on the Present State of our Knowledge with Regard to the Mollusca of the West Coast of North America. *Rep. Brit. Assoc.* 1863 (*Pub. August* 1864).

CHENU, J. C. 1845–46. *Bibliothèque Conchyliologique.* Sér. I–II. 5 vols. illus. Paris. 4°.

CHILDREN, J. G. 1822–4. Lamarck's Genera of Shells translated from the French. 177 pp.; 10 pls. London. Originally issued in *Quart. Journ. Sci.* etc. **14** : **15** : **16**. (For full collation see *Catalogue of Library, British Museum* (*Nat. Hist.*) **3** : 1049, and Kennard & Woodward, 1926 p. 371.)

CLARKE, W. 1819. *Repertorium Bibliographicum.* xlviii + 673 pp.; 12 pls. London.

COMFORT, A. 1949. Biochemistry of Molluscan shell pigments. *Proc. Mal. Soc.* **28** : 79–85.

CONRAD, T. A. 1831. *American Marine Conchology.* iv + 72 pp.; 17 pls. Philadelphia.

—— 1837. Descriptions of new Marine Shells from Upper California, collected by Thomas Nuttall, Esq. *J. Acad. Nat. Sci. Philad.* **7** : 227–268.

CRACHERODE, C. M. 1791. *Manuscript Catalogue of Shells.* 3 parts (in one vol.). London.

CROUCH, E. A. 1827. *An Illustrated Introduction to Lamarck's* Conchology . . . *being a literal translation of the Recent and Fossil Genera etc., etc.* iv + 44 pp.; 22 col. pls. London. 4°.

DALL, W. H. 1889. *A Preliminary Catalogue of Shell-bearing Marine Molluscs and Brachiopods of the S. E. Coast of the United States.* 221 pp.; 74 pls. Washington.

—— 1898. Tertiary Fauna of Florida. *Trans. Wagner. Free. Inst. Sci.* **3**; (4) 571–947; 35 pls.

—— 1901. Synopsis of the Lucinacea and the North American species. *Proc. U.S. N. M.* **23** : 779–833; 4 pls.

—— 1905. Note on *Lucina* (*Miltha*) *Childreni* Gray, and on a new species from the Gulf of California. *Nautilus* **18** : 110–112.

—— 1915. An Index to the Museum Boltenianum. *Smithsonian Inst. Publication* 2360.

DAWSON, W. R. 1949. Some Eighteenth Century Conchologists. *J. Conch.* **23** : 44–47.

DELL, R. K. 1955. *Native Shells.* 64 pp.; 143 text-figs. (*Native in New Zealand series.*) Wellington.

DESHAYES, G. P. 1830–32. *Histoire Naturelle des Vers . . . Par M. Bruguière* (. . . *continuée par M. G. P. Deshayes*) Tom. II & III, *Encyclopédie Methodique.* Paris. 4°.

—— 1853. *Catalogue of the Conchifera of Bivalve Shells in the Collection of the British Museum.* Part 1. *Veneridae etc.*, 216 pp. London.

DIBDIN, T. F. 1817. *The Bibliographical Decameron.* 3 vols. illus. London.

DILLWYN, L. W. 1817. *A Descriptive Catalogue of Recent Shells.* 2 vols. xii + 1092 pp. London.

—— 1827. Remarks on Cypraea described by Mr. Gray. *Zool. J.* **3**; 315–317.

DODGE, H. 1952. A Historical Review of the Mollusks of Linnaeus. Part 1. The Classes Loricata and Pelecypoda. *Bull. Amer. Mus. Nat. Hist.* **100** : 1–264.

DONOVAN, E. 1823–27. *The Naturalist's Repository, or Miscellany of exotic Natural History, etc., etc.* 5 vols.; 180 col. pls. with descriptive letterpress. (*Reissued* 1834.) London. 4°.

DUBOIS, C. 1825. *An Epitome of Lamarck's Arrangement of Testacea; being a free translation of his work* De l'Histoire Naturelle des Animaux sans Vertèbres . . . Second Edition. xxx + 317 pp. London.

—— 1828. ——. Third Edition. 15 col. pls. London.

EDWARDS, E. 1870. *Lives of the Founders of the British Museum.* x + 780 pp.; 13 text illus. London.

ENCYCLOPAEDIA LONDINENSIS, *or Universal Dictionary of Arts, Sciences etc., etc., compiled, digested and arranged by John Wilkes.* Article Conchology, Vol. **5** : 14–41; 16 col. pls. & col frontispiece. 1810. London. 4°.

FISCHER VON WALDHEIM, G. 1806–7. *Muséum Demidoff* (*mis en ordre systématique et décrit par G. Fischer*) . . . *catalogue* . . . *des curiosités de la Nature et de l'Art, données à l'Université imperiale de Moscou par* . . . *P de Demidoff.* 3 Tom. (in 1) illus. Moscow. 4°.

FLETCHER, L. 1904. *See* British Museum (Nat. Hist.).

FULTON, H. C. 1915. A List of the Recent Species of *Spondylus* Linné, with some Notes and Descriptions of six New Forms. *J. Conch.* **14** : 331–362.

—— 1937. Notes on the Recent *Spondylus* of Florida. *Nautilus*, **51** : 38–39.

GATLIFF, J. H. 1902. Notes on Perry's *Conchology. Victorian Naturalist*, **19** : 75–76.

GMELIN, J. F. 1790. *C. a Linné . . . Systema Naturae . . . Editio decima tertia . . . cura J. F. Gmelin*, 1788–93, **1** (6) : 3021–3910. Lipsiae

Gould, A. A. 1833. *Lamarck's Genera of Shells. with a Catalogue of Species. Translated from the French.* vii + 110 pp.; 1 pl. Boston.

—— 1850. Shells from the United States Exploring Expedition. *Proc. Boston Soc. Nat. Hist,* **3** : 309–12.

Gray, E. W. 1799. Manuscript *Catalogue of Minerals bequeathed to the British Museum by the Rev. Clayton Mordaunt Cracherode A.M.* 96 pp. London. 4°.

—— 1801. Manuscript *Catalogue of Shells bequeathed to the British Museum by the Rev. Clayton Mordaunt Cracherode A.M.* 98 pp. London. 4°.

Gray, J. E. 1821. A Natural Arrangement of the Mollusca. *London Med. Repos.* **15** : 229–239.

—— 1821–31. *The Zoological Miscellany,* pp. 1–86; 6 pts. (*All published.*) 4 pls. London. 4°.

—— 1824. Conchological Observations, being an attempt to fix the study of Conchology on a firm basis. *Zool. J.* **1** : 204–224.

—— 1824–28. Monograph on the Cypraeideae, a Family of Testaceous Mollusca. *Ibid.* **1** : 71–80, 137–152, 367–391 (1824), 489–518 (1825); **3** : 363–371, 567–576 (1828); **4** : 66–88, 213–216. Index (1828).

—— 1824. On the structure of *Melania setosa. Ibid.* **1** : 253–255.

—— 1824. Reply to Mr. Swainson on *Neritina Corona* and *Melania setosa. Ibid.* **1** : 523–526.

—— 1825. A List and Description of some Species of Shells not taken Notice of by Lamarck. Pt. 1. *Ann. Phil.* **9** : 135–140.

—— 1837. A Synoptical Catalogue of the Species of certain Tribes or Genera of Shells . . . with Descriptions of the New Species. *Charlesworth's Mag. Nat. Hist.* (New Ser.) **1** : 370–376.

—— 1838. Catalogue of the species of the genus Cytherea, of Lamarck. *The Analyst,* **8**: 302–309.

—— 1847. A List of the Genera of Recent Mollusca, their Synonyma and Types. *Proc. Zool. Soc. London,* **1847** : 129–219. (Reprinted in vol 4 of M. E. Gray's *Figures of Molluscous Animals,* 1859 with original pagination.)

—— 1852. *Molluscorum Britanniae Synopsis etc.* (*Edited from W. E. Leach's proofs and MSS. by J. E. Gray.*) xvi + 376 pp.; 13 pls. London.

—— 1853. A Revision of the Genera of some Families of Conchifera or Bivalve Shells. *Ann. Mag. Nat. Hist.* (Ser. 2), **11** : 33–44.

Grew, N. 1681. *Musaeum Regalis Societatis, or a Catalogue & Description of . . . Rarities belonging to the Royal Society etc.* 10 + 386 + 43; 31 pls. Engr. portrait. London. fol.

Gronovius, L. T. 1763–81. *Zoophylacium Gronovianum, exhibens Animalia, Quadrupeda, Amphibia, Pisces, Insecta, Vermes, Mollusca, Testacea et Zoophyta.* 3 pts. vi + 380 [18] vi pp.; 20 pls. Lugduni Batavorum. fol.

Günther, A. 1912. *See* British Museum (Nat. Hist.).

Hanley, S. 1855. *Ipsa Linnaei Conchylia. The Shells of Linnaeus, determined from his manuscripts and collection.* . . . 556 pp.; 6 pls. London.

—— 1856. *Index Testaceologicus, An Illustrated Catalogue of British and Foreign Shells . . . by W. Wood. Revised edition.* xx + 234 pp.; 38 + 8 col. pls. London.

Hedley, C. 1902. Studies on Australian Mollusca. Part VI. *Proc. Linn. Soc. N. S. Wales,* **27** (1) : 7–29; 2 pls.

—— & Pilsbry, H. 1912. Strange names for old acquaintances. *Nautilus,* **26** : 45–46.

Hermann, J. 1781. Erster Brief über einige Conchylien an den Herausgeber. *Der Naturforscher* **16** : 50–56.

Hopwood, A. T. 1946. Miscellaneous Notes. 1. Perry's *Conchology. Proc. Mal. Soc. London,* **26** : 152.

Hornell, J. 1951. *Indian Molluscs.* iv + 96 pp.; 70 text-figs.; 1 col. pl. (Bombay Natural History Soc.) Bombay.

[Humphrey, G.] 1786. *A Catalogue of the Portland Museum . . . Sold by Auction . . . 24th of April,* 1786, *and the thirty-seven following days etc.* viii + 194 + 6 pp. Engr. portrait & frontispiece. London. 4°.

Humphrey, G. & Cracherode, C. M. 1788. Manuscript *Catalogue of Fossils.* 123 pp. London. 4°.

Humphrey, G. 1794. Account of the Gizzard of . . . *Bulla lignaria. Trans. Linn. Soc. London,* 2 : 15–18.

[Humphrey, G.] 1797. *Museum Calonnianum, specification of the Various articles which compose the . . . Museum of Natural History collected by M. de Calonne in France, etc.* Part 1. viii + 84 pp. London.

Hynd, J. S. 1954. A Revision of the Australian Pearl-shells, Genus *Pinctada* (Lamellibranchia). *Aust. J. Mar. & Freshwater Res.* **6** : 98–137 ; 13 pls.

Iredale. T. 1912. New Generic names and new species of Marine Mollusca. *Proc. Mal. Soc. London,* **10** : 217–228.

—— 1927. Caloundra Shells. *Aust. Zool.* **4** : 331–336.

—— 1937. The Truth about the Museum Calonnianum. *Festschrift für Prof. Dr. Embrik Strand,* **3** : 408–419. (Univ. Riga.)

—— 1939. Great Barrier Reef Expedition 1928–29, Scientific Reports, **5**, No. 6. *Mollusca,* Part 1 209–425 ; 7 pls. ; 1 map. British Museum (Natural History). London. 4°.

Jackson, J. W. 1937. A letter from George Humphrey to William Swainson. 1815. *J. Conch.* **20** : 332–337.

Jameson, H. L. 1901. On the Identity and Distribution of the Mother-of-Pearl Oysters ; and a Revision of the Subgenus *Margaritifera. Proc. Zool. Soc. London,* 1901, **1** : 372–394.

Johnson, C. W. 1911. Note on *Spondylus echinatus* Martyn. *Nautilus,* **25** : 11.

Johnston, G. 1850. *An Introduction to Conchology.* xvi + 614 pp. ; 102 text figs. London.

Jukes Brown, A. J. 1913. On *Tivela* and *Grateloupia. Proc. Mal. Soc. London,* **10** : 266–273.

—— 1914. Synopsis of the Veneridae. *Ibid.* **11** : 58–94.

Keep, J. 1935. *West Coast Shells. Revised by Joshua Bailey, Jr.* xi + 350 pp., 334 text-figs. California.

Kennard, A. S. & Woodward, B. B. 1922. On the genesis of the designation of " Types " among Malacological writers. *Proc. Mal. Soc. London,* **15** : 47–51.

—— 1926. *Synonomy of the British non-Marine Mollusca.* xxiv + 447 pp. British Museum (Nat. Hist.).)

—— Salisbury, A. E. & Woodward, B. B. 1931. The Types of Lamarck's Genera of Shells as selected by J. G. Children in 1823. *Smithsonian Miscel. Coll.* **82**, No. 17.

Lamarck, J. B. P. A. de M. de. 1799. Prodrome d'une nouvelle classification des Coquilles. *Mém. Soc. Hist. Nat. Paris,* 163–191.

—— 1815–22. *Histoire Naturelle des Animaux Sans Vertèbres, presentant les caractères généraux et particuliers de ces Animaux, etc.,* 7 vols. Paris.

—— 1835–45. —— Ed. 2 . . . revue at augmentée . . . par . . . G. P. Deshayes. 11 vols. Paris.

Lamy, E. 1938. Révision des *Spondylus* vivants du Museum National d'Histoire Naturelle de Paris. *J. Conchyl.* **82** : 177–214 ; 265–306.

Leach, W. E. 1814–17. *The Zoological Miscellany ; being descriptions of new, or interesting animals . . . illustrated with coloured figures by R. P. Nodder.* 3 vols. London. 4°.

Linnaeus, C. 1758. *Systema Naturae . . . Editio Decima, reformata.* Tom. 1. 824 pp. Holmiae.

—— 1767. —— *Editio duodecima reformata.* Tom. 1. Part 2 ; 533–1327 [36]. Holmiae.

Lister, M. 1685–92(97). *Historia sive Synopsis methodicae Conchyliorum . . . liber . . . S. et A. Lister figuras pin. 6 pt.* [in 2 vols.] ; 1057 pls. Londini. fol.

Martini, F., & Chemnitz, J. 1769–95. *Neues Systematisches Conchylien Cabinet.* 11 vols. illust. Col. Nurnburg. 4°.

Matheson, C 1954. Thomas Pennant and the Morris Brothers. *Ann. Sci.* **10** : 258–271.

Mathews, G. M., & Iredale, T. 1912. Perry's *Arcana*—An overlooked work. *Victorian Naturalist,* **29** : 7–16.

Melvill, J. C. 1888. On the genus Cypraea. *Mem. Proc. Manchester Lit. Phil. Soc.* (*Ser.* 4), **1** : 184–252.

MELVILL, J. C. 1900. Lovell Reeve : A brief sketch of life and career. *J. Conch.* **9** : 344–357.

—— 1916. Notes on the genus Harpa. *Ibid.* **15** : 25–40.

MONTFORT, P. DE. 1808–10. *Conchyliologie Systematique et Classification Methodique des Coquilles.* 2 Tom. illus. Paris.

NICKLÈS, M. 1950. Mollusques testacés Marins de la Côte occidentale d'Afrique. *Manuels Ouest-Africains,* **2** : vi + 269 pp. Paris.

ODHNER, N. 1917. Results of Dr. G. Mjöbergs Swedish Scientific Expeditions to Australia. 1910–13. *K. Svensk. Vet. Akad. Handlingar,* **52** : 16 ; 115 pp. ; 3 pls. ; 51 text-figs.

ORBIGNY, A. D' 1835–47. *Voyage dans l'Amérique Méridionale exécuté pendant* 1826–33. 7 vols. & atlas. Paris. 4°.

PARRY, SIR W. E. 1821. *Journal of a Voyage for the Discovery of a North West Passage . . . performed in . . .* 1819–20, *in* H.M.S. Hecla *and* Griper *. . . with an Appendix.* xxxix + 310 + clxxix pp. 14 pls. 6 maps. London. 4°.

—— 1824. *Supplement to the Appendix etc.* clxxxi-cccx pp. 6 pls. (*Shells by J. E. Gray.*) London. 4°.

PERRY, G. 1810–11. *Arcana, or The Museum of Natural History ; containing the most recent discovered objects . . . with . . . plates, and . . . descriptions.* 84 col. pls. with descriptive letterpress. London.

—— 1811. *Conchology of the Natural History of Shells . . . illustrated by coloured engravings . . . including the latest discoveries.* 4 pp. intro. 61 col. pls., with descriptive letterpress.

PERRY, L., & SCHWENGEL, J. 1955. *Marine Shells of the Western Coast of Florida.* Frontispiece ; 318 pp., 54 pls. ; 6 text-figs.

PHILIPPI, R. A. 1848. *Centuria tertia Testaceorum novorum. Zeitsch. fur Malak.* **5** : 151–176.

PILSBRY, H. A. 1902. *Manual of Conchology* (*Ser.* **2**) *Pulmonata,* **14.** Philadelphia.

PRASHAD, B. 1932. *The Lamellibranchia of the Siboga Exopedition. Systematic Part.* II. *Pelecypoda.* 353 pp. ; 9 pls. ; 1 map. Leiden. 4°.

QUOY, J. R., & GAIMARD, J. 1830–35. *Voyage de . . . l'Astrolabe . . . pendant* 1826–29, *sous le commandement de M. J. Dumont d'Urville, etc., Zoologie ;* 4 vols. & atlas. Paris. 8° & fol.

RÈCLUZ, C. A. 1841. Description de quelques nouvelles espèces de Nérites vivantes. *Rev. Zool.* (*Soc. Cuv.*) **4** : 2 pts. 102 ; 273.

REEVE, L. 1841. *Conchologia Systematica or Complete System of Conchology : in which the the Lepades and Conchiferous mollusca are described,* etc., 2 vols. 300 col. pls. London. 4°.

—— & SOWERBY, G. B. 1843–78. *Conchologia Iconica or Illustrations of the Shells of Molluscous Animals.* (*Continued by G. B. Sowerby.*) 20 vols. Illust. in Col. London. 4°.

RÖDING, P. F. 1798. *Museum Boltenianum . . . Pars Secunda Conchylia, etc.,* viii + 199 pp. Hamburghi.

—— 1906. *Reprint of* 1798 *edition, with introductory note by C. D. Sherborn and E. R. Sykes.* viii + 199 pp. London.

ROGERS, J. E. 1908. *The Shell Book.* xvi + 503 pp., 95 pls. Boston. 4°.

—— 1951. —— *Second edition* [with list of modern names by Harald A. Rehder.]

SAY, T. 1822. An Account of some of the Marine Shells of the Shells of the United States. *J. Acad. Nat. Sci. Philad.* **2** : 221–248 ; 257–325.

—— 1858. *The Complete writings of Thomas Say on the Conchology of the United States. Ed. by W. G. Binney.* vi + 252 pp., 75 col. pls.

SCHUBERT, G. H., & WAGNER, J. A. 1829. *Neues Systematisches Conchylien Cabinet, angefangen von Martini und Chemnitz.* Bd. **12.** Nürnberg. 4°.

SCHUMACHER, C. F. 1817. *Essai d'un Nouveau Système des Habitations des Vers Testacés.* 2 + 287 pp. 22 pls. Copenhagen 4°.

SHARPE, R. B. 1906. *See* British Museum (Nat. Hist.).

SHERBORN, C. D. 1902. *Index Animalium sive index nominum quae ab* A.D. 1758 *generibus et speciebus animalium imposita sunt . . . Sectio prima . . . usque ad finem . . .*1800. lix + 1195 pp. Cantabrigiae.

SMITH, E. 1911. *The Life of Sir Joseph Banks. President of the Royal Society*, etc. xvi + 348 pp., Frontispiece ; 16 pls. London.

SMITH, E. A. 1906. *See* British Museum (Nat. Hist.).

—— 1914. On Australian Mactridae. *Proc. Mal. Soc. London*, **11** : 137–151.

SMITH, M. 1942. *A Review of the Volutidae.* 127 pp. Frontispiece ; 26 pls. Florida. 4°.

—— 1951. *East Coast Marine Shells. 4th edition revised.* vii + 314 pp. ; 77 pls. Florida. 4°.

SOLEM, A. 1954. Living species of the Pelecypod Family Trapeziidae. *Proc. Mal. Soc. London*, **31** : 64–84.

SOWERBY, G. B. 1825. *A Catalogue of the Shells . . . of the late Earl of Tankerville . . . with an appendix.* vii + 92 + xxxiv pp. ; 7 col pls. London.

—— 1828. Notes on Mr. Gray's Additions and Corrections to a Monograph on Cypraea, in a letter addressed to W. J. Broderip, Esq. *Zool. J.* **4** : 217–221.

SOWERBY, J. *The Genera of Recent and Fossil Shells for the use of students in Conchology and Geology. Commenced by J. Sowerby . . . and continued by G. B. Sowerby* (*1st*) *. . . with . . . plates by J. Sowerby and J. D. C. Sowerby.* 2 vols. 267 col. pls. with descriptive letterpress. London.

STEINBECK, J., & RICKETTS, E. 1941. *Sea of Cortez ; a leisurely Journal of travel and research.* x + 598 pp. ; 40 pls. New York. (*Annottaed Phyletic Catalogue and Bibliography*, pp. 283–586.)

SWAINSON, W. 1820–23. *Zoological Illustrations of Original figures and descriptions of New, Rare or Interesting Animals, etc.*, Ser. 1. 3 vols. col. pls. Descriptive letterpress. London.

—— 1829–33. *Ibid.* Ser. 2. 3 vols. col. pls. Descriptive letterpress. London.

—— 1822. *A Catalogue of the Rare and Valuable Shells, which formed the celebrated collection of the late Mrs. Bligh. With an appendix.* iv + 22 pp. ; 2 col. pls. London.

—— 1823. The Specific Characters of several undescribed Shells. *Phil. Mag. & Journ.* **62** : 401–403.

—— 1824. Description of Two New and Remarkable Fresh Water Shells : Melania setosa and Unio gigas. *Q. Journ. Sci.* (*R. Inst. Gt. Brit.*) **17** (33) : 13–17.

—— 1824. Observations on Melania Setosa in reply to Mr. Gray. *Zool. J.* **1** : 399–403.

—— 1840. *Taxidermy ; with the biography of Zoologists, etc.*, (*Lardner's Cabinet Cyclopaedia*, vol. **126**) ; 392 pp. ; text fig. Engr. Title. London.

THIELE, J. 1931–35. *Handbuch der Systematischen Weichtierkunde.* 2 Bde. vi + 778 ; v + 779–1154 pp. Illust. Jena.

TOMLIN, J. R. LE B. 1927. The Mollusca of the " St. George " Expedition (1). *J. Conch.* **18** : 154–170.

VIADER, R. 1937. Revised Catalogue of the Testaceous Mollusca of Mauritius and its Dependencies. *Maurit. Inst. Bull.* **1**, pt. 2. Mauritius.

WILKINS, G. L. 1951. Strombus thersites Swainson : Designation of a Lectotype. *Proc. Mal. Soc. London*, **28** : 238–239 ; 1 pl.

—— 1953*a*. A Catalogue and Historical Account of the Sloane Shell Collection. *Bull. Brit. Mus.* (*Nat. Hist.*) *Historical Series*, **1**, No. 1 : 1–47 ; 12 pls.

—— 1953*b*. Notes on some recently recognized types in the British Museum (Natural History). Designation of two Lectotypes. *J. Conch.* **23** : 290–294.

—— 1954. Captain Cook's Imperial Sun Trochus. *Ibid.* **24** : 7–12.

—— 1955. A Catalogue and Historical Account of the Banks Shell Collection. *Bull. Brit. Mus.* (*Nat. Hist.*) *Historical Series*, **1**, No. 3 : 71–119 ; 6 pls.

WINCKWORTH, R. 1929. Marine Mollusca from South India and Ceylon. III : *Pinna.* With an index to the recent species of *Pinna. Proc. Mal. Soc. London*, **18** : 276–297.

—— 1945. The types of the Boltenian genera. *Ibid.* **26** : 136–148.

WOOD, W. 1815. *General Conchology ; or, a description of shells arranged according to the Linnean system.* iv + 246 pp. 60 col pls. (*Reissued* 1835 *with new title page.*) London. 4°.

WOOD, W. 1818. *Index Testaceologicus, or a Catalogue of Shells British and Foreign* . . . viii × 188 pp.; 8 col pls. London.

—— 1825. *Ibid. 2nd Edition;* viii + 188 pp. 38 col. pls. London.

—— 1828. *Ibid.* . . . *Supplement.* iv + 59 pp.; 8 col. pls. (480 figs.). London.

WYATT, T. 1838. *A Manual of Conchology, according to the system laid down by Lamarck, with the late improvements by de Blainville.* ix + 191 pp.; 36 col. pls. New York.

YEN, T. 1942. A Review of Chinese Gastropods in the British Museum. *Proc. Mal. Soc. London,* **24**: 170–289; pls. 11–28.

9. ACKNOWLEDGMENTS

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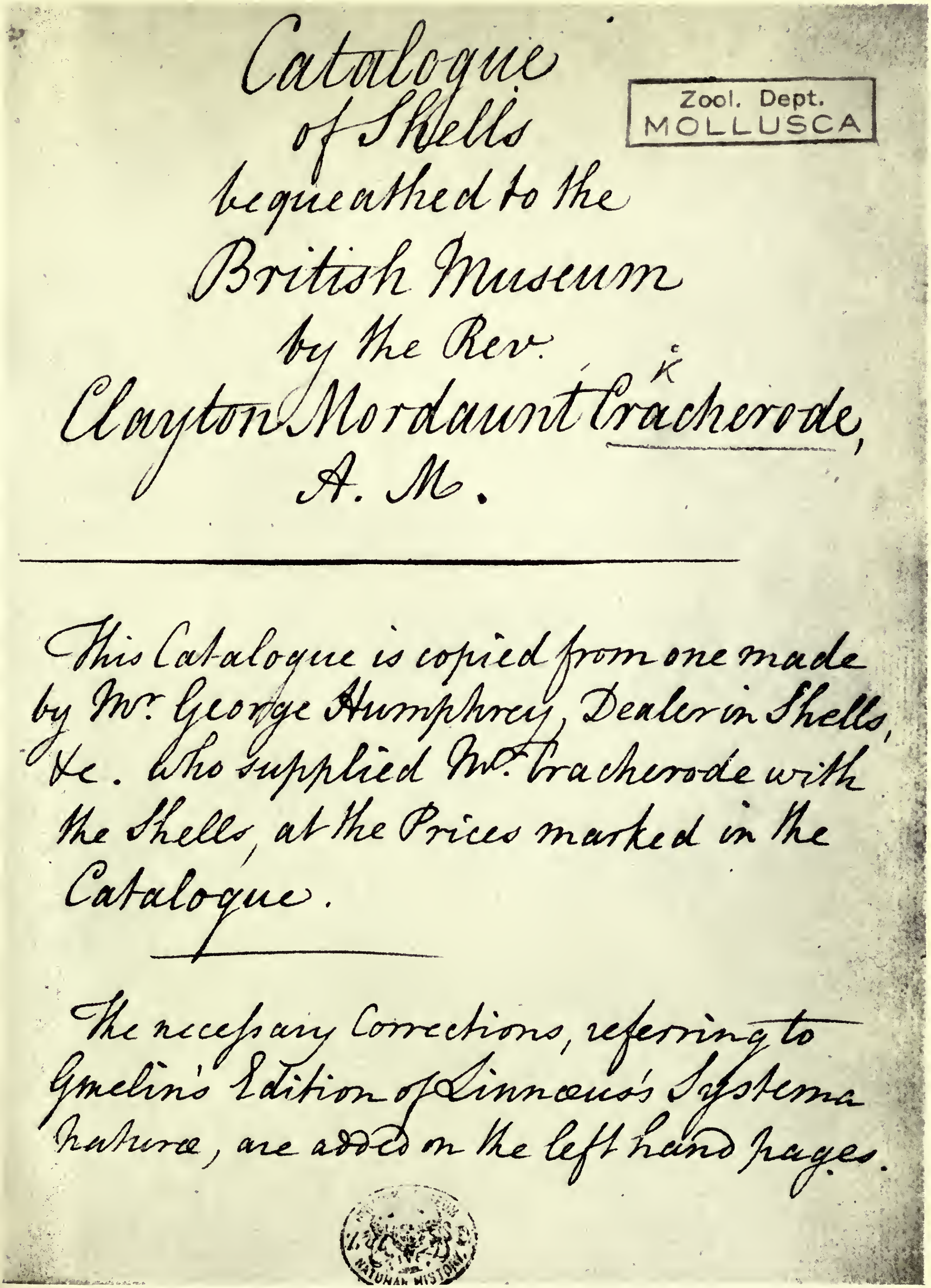
EXPLANATION OF THE PLATES

(With the exception of those on plate 25 the figures are all natural size.)

PLATE 20

FIG. 1. Title page of the Catalogue of the Cracherode Shell collection written by Dr. E. W. Gray in 1801.



Zool. Dept.
MOLLUSCA

Catalogue
of Shells
bequeathed to the
British Museum
by the Rev.
k
Clayton Mordaunt Cracherode,
A. M.

This Catalogue is copied from one made by Mr. George Humphrey, Dealer in Shells, &c. who supplied Mr. Cracherode with the Shells, at the Prices marked in the Catalogue.

The necessary Corrections, referring to Gmelin's Edition of Linnæus's Systema naturæ, are added on the left hand pages.

Fig. 1.

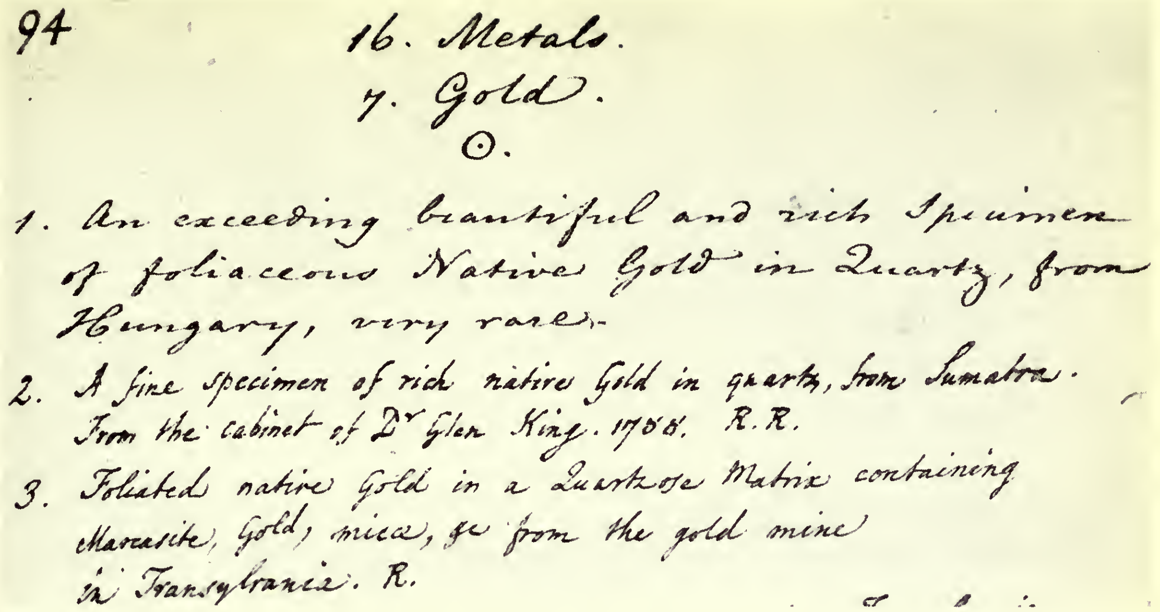
PLATE 21

FIG. 2. Upper portion of page 94 of the Humphrey-Cracherode mineral catalogue ; item one written by George Humphrey, items two and three added by C. M. Cracherode.

FIG. 3. Cracherode specimens exhibiting E. W. Gray's catalogue numbers and names written on the shells.

a. *Spondylus americanus* Hermann, Crach. No. 197.
b. *Trapezium sowerbyi* Hidalgo, Crach. No. 35.
c. *Chlamys tranquebaricus* (Gmelin), Crach. No. 122.

(*Note pink disc attached to figs.* a *and* c.)



94

16. Metals.

7. Gold.

⊙.

1. An exceeding beautiful and rich Specimen of foliaceous Native Gold in Quartz, from Hungary, very rare.
2. A fine specimen of rich native Gold in quartz, from Sumatra. From the cabinet of Dr Glen King. 1788. R.R.
3. Foliated native Gold in a Quartzose Matrix containing Marcasite, Gold, mica, &c from the gold mine in Transylvania. R.

FIG. 2.

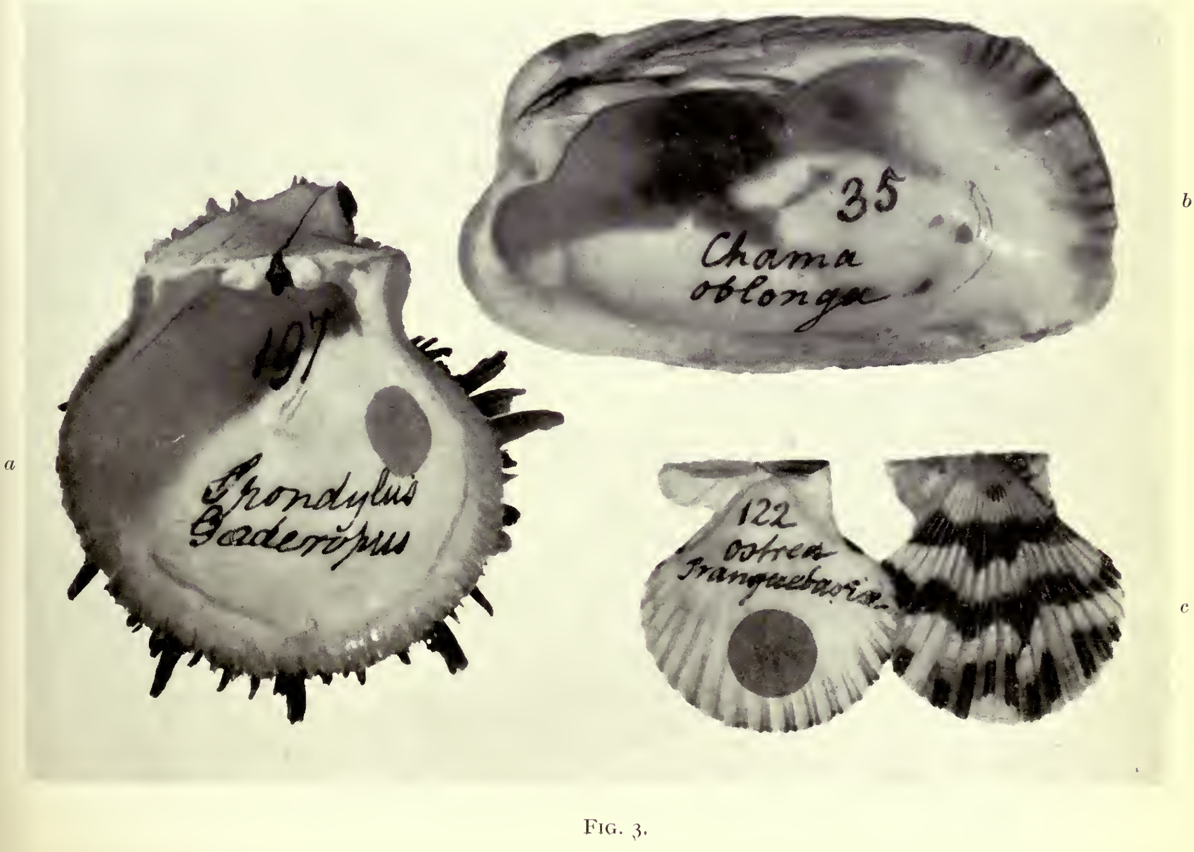
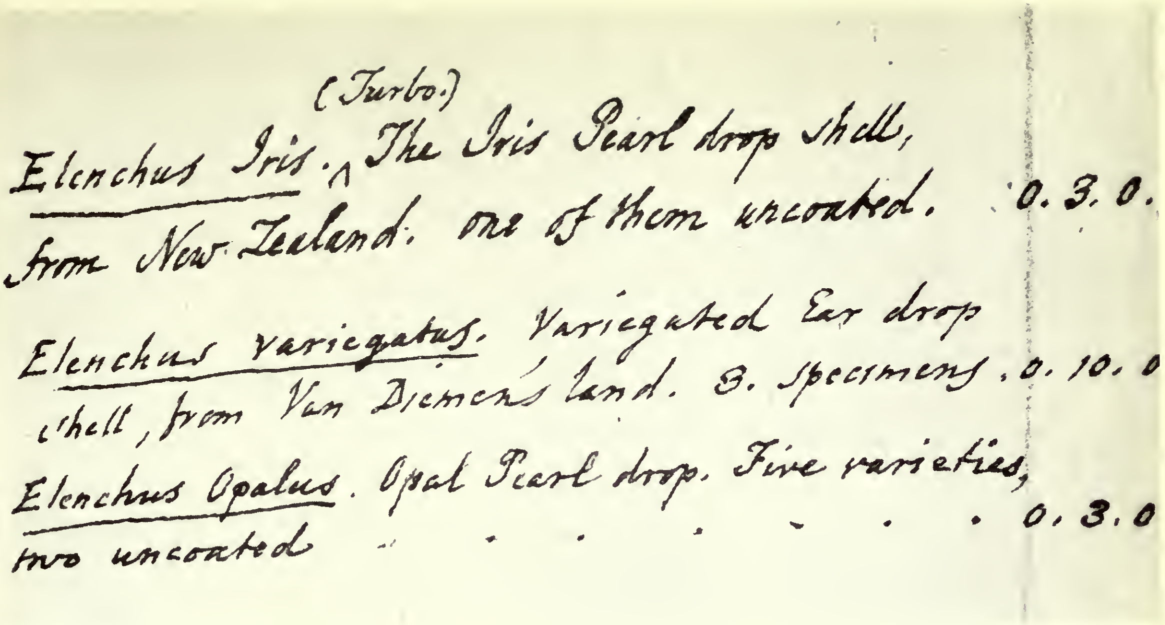

197
Spondylus
Gaderöpus
35
Chama
oblonga
122
Ostrea
Tranquebaria.
a
b
c

FIG. 3.

PLATE 22

FIG. 4. A page from the small octavo catalogue (dated 1791) written entirely by Cracherode.

FIG. 5. Page 25 of the E. W. Gray Catalogue showing items copied exactly, with numbers added.

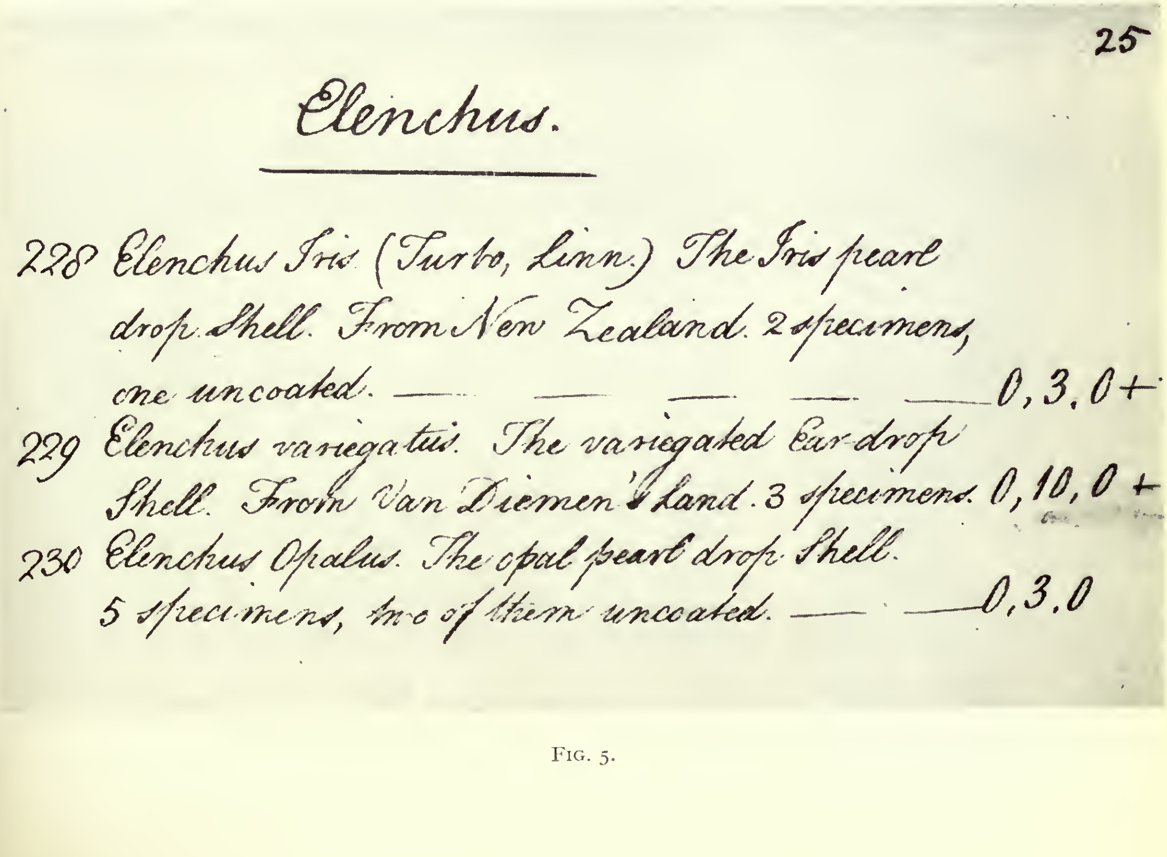


Elenchus Iris. (Turbo) The Iris Pearl drop shell,
from New Zealand. one of them uncoated. 0. 3. 0.

Elenchus variegatus. Variegated Ear drop
shell, from Van Diemen's land. 3. specimens . 0. 10. 0

Elenchus Opalus. Opal Pearl drop. Five varieties,
two uncoated 0. 3. 0

FIG. 4.



25

Elenchus.

228 Elenchus Iris (Turbo, Linn.) The Iris pearl
drop Shell. From New Zealand. 2 specimens,
one uncoated. — — — — — —0,3,0+
229 Elenchus variegatus. The variegated Ear-drop
Shell. From Van Diemen's Land. 3 specimens. 0,10,0 +
230 Elenchus Opalus. The opal pearl drop Shell.
5 specimens, two of them uncoated. — —0,3,0

FIG. 5.

PLATE 23

FIG. 6. Lectotype of *Lucina Chiedrenae* Gray, Crach. No. 216.

FIG. 7. Holotype of *Crenatula folium* Gray, attached to original tablet. Crach. No. 93, ex Calonne No. 821.

FIG. 8. *Scaphander lignarius* (Linné), with original gizzard plates, as sold by Humphrey to Cracherode. Crach. No. 77.

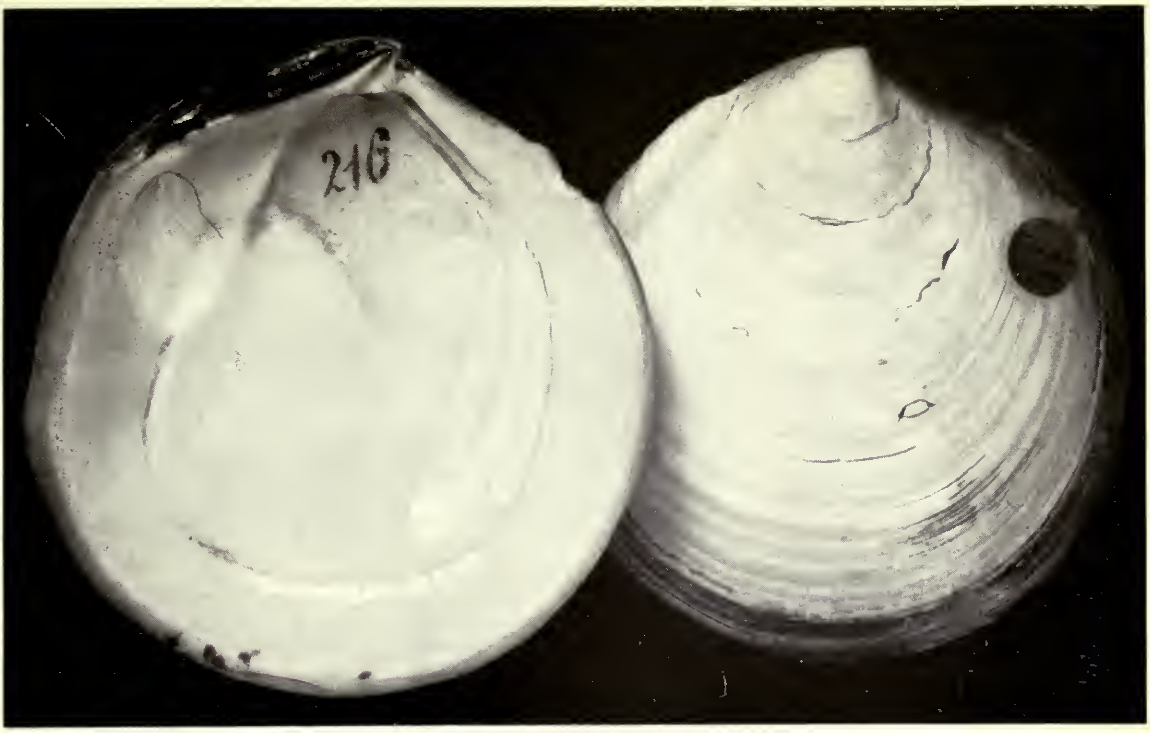


FIG. 6.

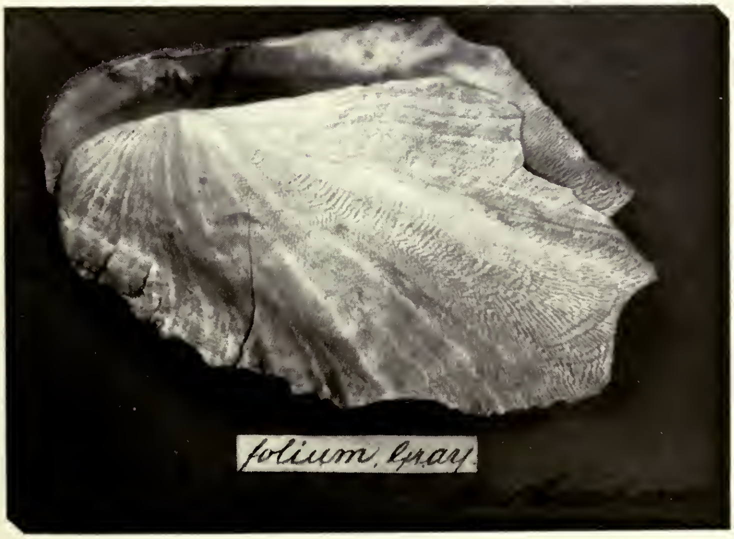

folium, Gray

FIG. 7.

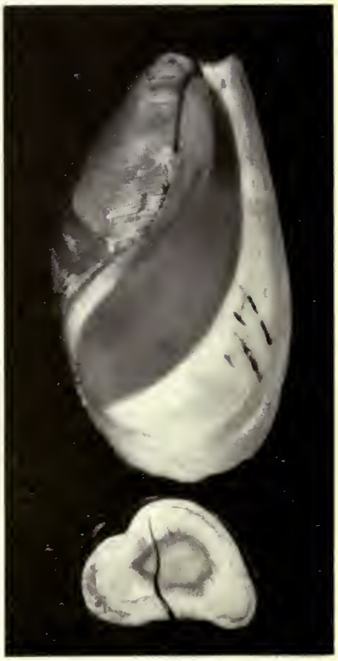


FIG. 8.

PLATE 24

FIG. 9. *Labiosa lineata* (Say), Holotype of *Mactra cyprinus* Wood, attached to original tablet with E. A. Smith's label. Crach. No. 59, ex Calonne No. 838.

FIG. 10. *Anostoma octodentatum* F. de Waldheim. Crach. No. 269.

FIG. 11. Holotype of *Clithon coronata* Leach. Crach. No. 354.

FIG. 12. *Labiosa lineata* (Say), Holotype of *Mactra recurva* Wood, on original tablet with E. A. Smith's label, and J. R. le B. Tomlin's type label in top left-hand corner. Crach. No. 60.

FIG. 13. Holotype of *Pinctada radiata* (Leach). Slight damage to shell replaced by dotted line. Crach. No. 82.

FIG. 14. *Circe cracherodii* Gray. Holotype. Crach. No. 169.

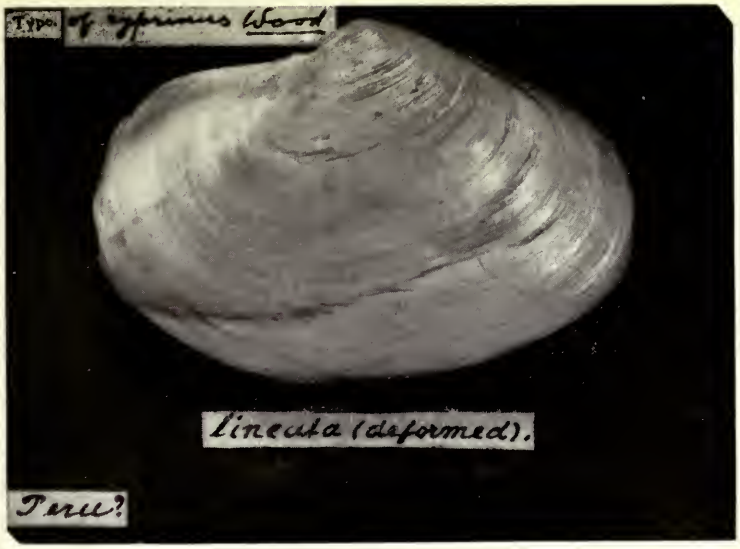

Type. of cyprinus Wood
lineata (deformed).
Peru?

FIG. 9.

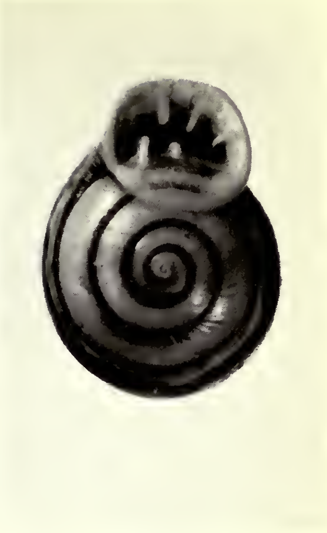


FIG. 10.

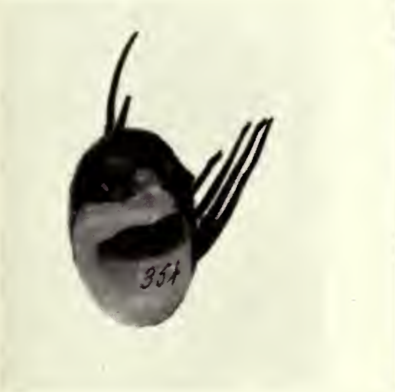


FIG. 11.

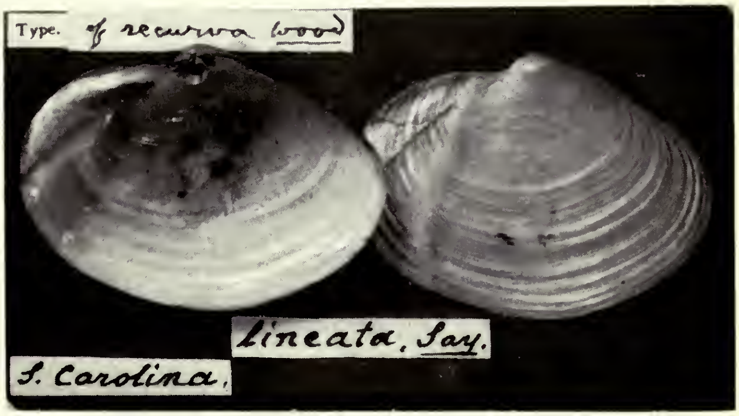

Type. of recurva Wood
lineata, Say.
S. Carolina.

FIG. 12.

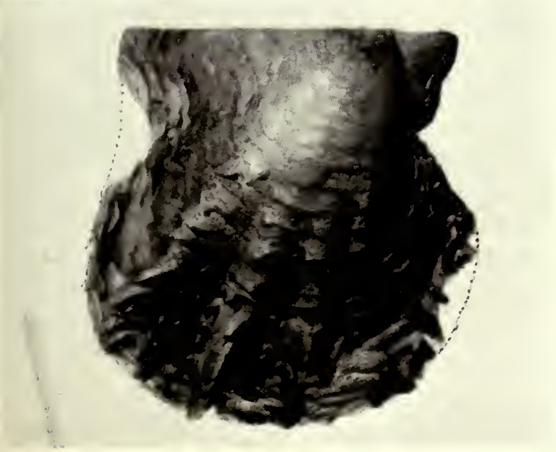


FIG. 13.

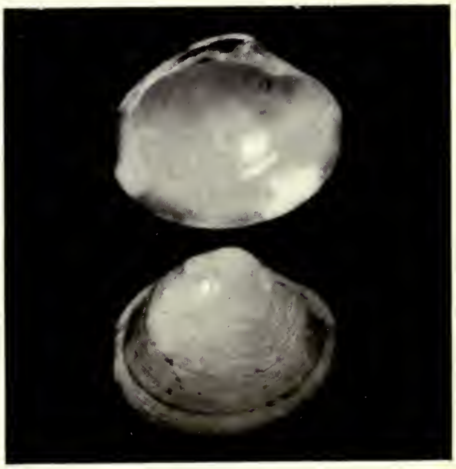


FIG. 14

PLATE 25

This plate shows a selected series of Cracherode specimens still mounted on the early Museum tablets, marked Mus. Cracherode, and still bearing J. G. Children's original paper labels. The original tablets have not been cut in any way, thus giving an idea of the appearance of the early exhibited collections.

FIG. 15*a*. *Thais columellaris* Lamarck. Crach. No. 58.

b. *Echinochama arcinella* (Linné). Crach. No. 39, ex Calonne 1020*a*.

c. *Murex acanthopterus* Lamarck. Crach. No. 321, ex Calonne 742.

d. *Murex permaestus* Hedley (*capucinus* Auct.). Crach. No. 314.

e. *Acavus haemastomus* (Linné). Crach. No. 258, said by Humphrey to have come from the famous collection of Pierre Lyonet (1707–89) of Gravenhage, Holland, a Dutch Lawyer whose shells were sold in 1796.

f. *Cypraea ventriculus* Lamarck, Crach. No. 216, labelled *C. achatina* Solander by Children, ex Humphrey in Cracherode MSS. catalogue.

g. *Cypraea camelopardalis* Perry, Crach. No. 214, labelled *Cypraea melanostoma* Leathes by Children.

h. *Murex scorpio* Linné. Crach. No. 317.

j. *Scutus antipodes* Montfort. (*Parmaphorus australis* Lamarck). Crach. No. 365.

(*All the above figures have been reduced by approximately one-fifth.*)

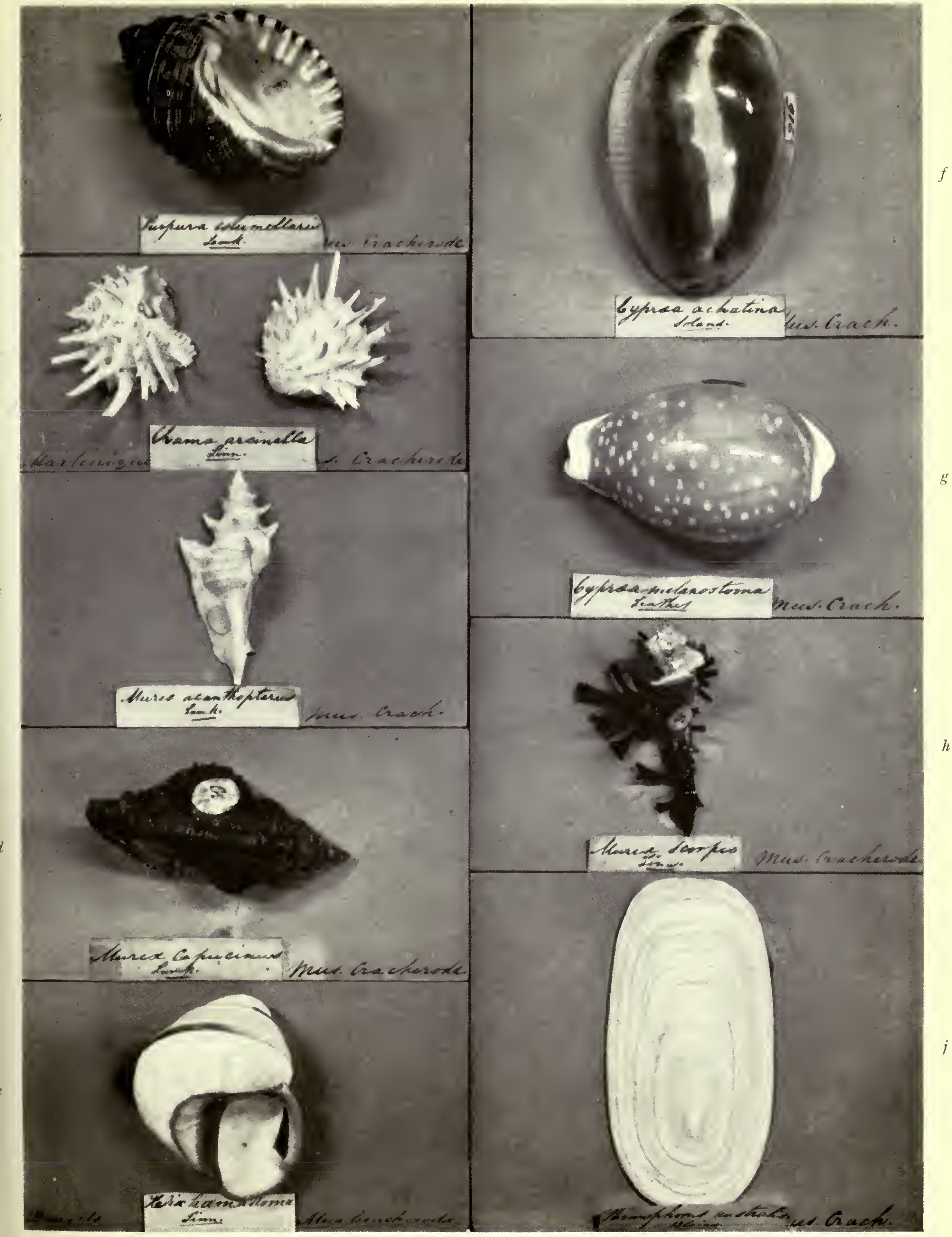

Purpura columellaris
Lamk.
us Cracherode
Chama arcinella
Linn.
Martinique
s. Cracherode
Murex acanthopterus
Lamk.
Mus. Crach.
Murex Capucinus
Lamk.
Mus. Cracherode
Helix haemastoma
Linn.
Mus. Cracherode
Cypraea achatina
Soland.
916
Mus. Crach.
f
Cypraea melanostoma
Leathes
Mus. Crach.
g
Murex Scorpio
Linn.
Mus. Cracherode
h
Mus. Crach.
j

FIG. 15.

BRITISH MUSEUM
22 MAR 1957
NATURAL HISTORY

THE GRONOVIUS FISH COLLECTION: A CATALOGUE AND HISTORICAL ACCOUNT

ALWYNE C. WHEELER

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES Vol. 1 No. 5
LONDON : 1958

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BY

ALWYNE C. WHEELER

Pp. 185–249; *Plates* 26–34

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LONDON: 1958

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24 JUL 1958
NATURAL HISTORY

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THE BRITISH MUSEUM

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THE GRONOVIUS FISH COLLECTION: A CATALOGUE AND HISTORICAL ACCOUNT

By ALWYNE C. WHEELER

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SYNOPSIS

The fishes collected by Laurens Theodorus Gronovius, and now preserved in the British Museum, have been re-examined. They were described by the collector during his lifetime, and in a posthumously published work; publications that were frequently referred to by Linnaeus in the tenth and twelfth editions of the *Systema Naturae*. Many of these type specimens are still extant. They have been identified and are listed in the catalogue.

A short biography of Gronovius and an historical account of the collection precede the catalogue; while the plates show some of the specimens, a page and an illustration from the manuscript, and the only known portrait of Gronovius.

1. INTRODUCTION

A LITTLE over a century ago a collection of fish skins preserved dry, and mounted on sheets of paper, was offered for sale in the auction rooms of Mr. Phillips of Bond Street, London. J. E. Gray, then Keeper of the Department of Zoology in the British Museum, viewed the collection and considering it " would be an advantageous purchase", acquired it at the sale. Subsequently, a manuscript which had been missing earlier was delivered to him. On examining the specimens he had decided that they could be dated to "about the time of Gronov", and having seen the manuscript he identified it, and the fishes, as part of Gronovius's own collection.

The specimens were incorporated in the collection of fishes at the British Museum, and the manuscript, edited by Gray, was published by order of the Trustees, in 1854. Beyond this and the publication of a short note (Gray, 1854*a*) in which he announced the acquisition of the collection, Gray took no further interest in it, but Günther, while preparing the *Catalogue of Fishes*, examined and identified the skins. It was he who first recognized some of the specimens as the types of Linnaean species, and noticed them as such in the *Catalogue;* but a number of these type specimens were not so recognized and, as the collection has never been systematically examined since his day, their significance has remained unappreciated.

I began to examine the Gronovius specimens while curating the " dry " fish collection and, in preparing a catalogue of the types described in 1854 (the manuscript edited by Gray), I realized that most of the skins were the same specimens which Gronovius had described in his earliest publications, the *Museum Ichthyologicum* (1754–56) and the *Zoophylacium* (1763). Although both works were non-binominal, later authors had given valid names to many of the descriptions, and chief amongst these was Linnaeus, who in the tenth and twelfth editions of the *Systema Naturae* had named many species wholly or partly on references to these works. Many of these specimens are thus part of the type series of Linnaean species. When I found that only a few had ever been recognized as such, it became obvious that a careful study of the whole collection would have more than an historical value. It is, however, essential to know something of the background to an early and historical museum collection. Such details that I have been able to give of the life of Gronovius amount to the most full account of the man whom Gray (1854*a*) described as, " one of the best ichthyologists of the latter part of the last century ".

2. A BIOGRAPHICAL NOTE

Work on an early collection of any kind inevitably leads to a desire to know something of its history, and particularly something about the collector. In this case the standard works of reference are of little value, for Laurens Theodorus is usually eclipsed by the lengthy notes on his famous father, his grandfather (Jacob) and even earlier ancestors. Most authors merely list his published works and mention that he was a Dutch naturalist of the eighteenth century, of some civic importance in his native town of Leiden, and although primarily an ichthyologist, the author or editor of several works on general natural history.

Other sources are scarcely better and have mainly concentrated on the *Zoophylacium.* Whitley (1929) in drawing attention to the binary names of fishes that appeared in the index to that work, was interested mainly in the repercussions that their resurrection would have on nomenclature.[1] Higgins (1950) accepted Whitley's account of the history of this work, and added a few biographical details, which, however, prove to be a translation of Gronovius's public offices and honours as they appeared after the author's name on the title page of the *Zoophylacium.* He also noted that Laurens Gronovius " edited the 9th edition of the Systema " of Linnaeus, an undertaking for which the elder Gronovius was actually responsible. Finally, a major work on the history and the genealogy of the Gronovius family (Bijleveld, 1942) traces it from the early sixteenth to the beginning of the twentieth centuries, and this has been followed for the purposes of the present study.

Laurens Theodorus Gronovius was born in Leiden on the 1st of June, 1730, and, baptized in the Hooglandse Kerk three days later. He was the only son of Johan Frederic Gronovius (1686–1762), although the latter had two daughters by a previous marriage, one of whom had died before Laurens was born. The elder Gronovius was a man of some importance in his native town of Leiden, being successively Senator, Sheriff and Burgomaster of the city, and also a practising doctor of medicine. Although he is remembered chiefly as a botanist, the author of the *Flora Virginica* (1739–43) and the *Flora Orientalis* (1755), he published a number of papers of zoological interest. As a member of the small circle of Dutch and foreign students of natural history then gathered in Holland, he was on intimate terms with Linnaeus, Artedi, van Royen, Boerhaave, Lawson, Seba and others whose names are perhaps less well known to-day. His second wife, the mother of Laurens, was Johanna Susanna Alensoon (1698–1774) of Leiden.

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[1] They have since been declared unacceptable by the International Commission on Zoological Nomenclature (1950).

The younger Gronovius was admitted to the Academy at Leiden on the 20th of March, 1744, and seven years later his *Dissertatio juridica inauguralis* was published. It seems probable that between the completion of his studies and 1762 (nearly eleven years), when he became increasingly occupied with civic affairs, he spent much of his time studying his father's collections. His main interest was in zoology, and his published works are nearly all concerned with vertebrate animals, and particularly fishes. In 1754 he published the first fascicle of the *Museum Ichthyologicum* (fascicle II–1756), a work which clearly reflected his ability in this field, although his methods and classification owe much to the work of Artedi. Despite the fact that his father may have helped in the preparation of the work (although there is no evidence that he did so), it is noteworthy that when the first volume was published the author was only twenty-four years old.

In addition, during these eleven years (1751–62) Gronovius published the *Bibliotheca Regni animalis* . . . (1760), reissued and edited part of Seguier's *Bibliotheca Botanica* . . . (1760), and made several contributions to the *Uitgezogte Verhandlingen* and *Acta Helvetica.* He also translated into Dutch, Alexander Russell's *Natural History of Aleppo* which was published in Leiden in 1762. Gronovius had corresponded with Russell and had been sent specimens of the fishes found in the vicinity of Aleppo, which were described and figured in the first fascicle of the *Zoophylacium* (Wheeler, 1956*b*). This fascicle was published in 1763, and the second part a year later, but much of both fascicles must have been written before 1762. Although Gronovius was only thirty-three years old, this was almost the last publication of his lifetime. The *Record of the Royal Society* shows that he was elected a Fellow on the 10th of March, 1763 ; and he became a member of the Hollandsche Maatschappij der Wetenschappen te Haarlem on the 25th of May, 1762.

In that year his preoccupation with his father's collections came to an end, and unhappily this coincided with their becoming his property, for on the 14th of July, at the age of 76, his father died, and Laurens, the only son, inherited his library, collections and responsibilities. Three days later he succeeded his father as a member of the Council of Forty (Veertig-raad)[1]. The Council was chosen from the citizens of the town and was largely concerned with the administration of the community, and the making and enforcement of local laws. He held this position until his death.

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[1] The civic posts that Gronovius held I quote parenthetically in Dutch, for it is often difficult to interpret them into English equivalents, and indeed many of them have no counterpart in English local administration.

On the 31st of August, 1765, the banns of Gronovius's marriage to Anna Apollonia Verbeek were published, and on the 15th of September they were married at Zierikzee. They lived in Leiden in a house that had belonged to the family for some years; it still stands in the Rappenburg opposite the buildings of the University. They had two children, Johannes, born the 4th of August, 1768, and Samuel Ulric, baptized in the Pieterskerk, Leiden, on the 2nd of December, 1772. The elder, a lawyer, went to the Dutch East Indies, where he died in 1822; his brother became the Dutch Ambassador at Baden, and died in Karlsruhe in 1810.

In 1767 Gronovius was elected to the College of Sheriffs (Schepen), which was in some ways the precursor of the modern town council. Four years later he was appointed (probably as treasurer), to the Waterschap, a group of prominent citizens responsible for the maintenance of the dykes. A year later he became a member of the council of the City Fathers (Vroedschap), and in 1773, Weesmeester, the regent or surveyor of the city's orphanages. The highest civic dignity that he attained was as a " Deputé de la Chambre des Comptes de la province de Hollande à la Hayé ", and as a member of the board which controlled the finances of the richest and most prosperous province of the country, he would have enjoyed considerable prestige.

In the year before he became a Deputé, however, both his wife and his mother died. His wife died on the 29th of January and his mother in December 1774; both were buried in the Pieterskerk in Leiden. Gronovius's last years were marked with tragic irony; in 1773 his appointment as Weesmeester gave him charge over the orphanages of the province, and at the time, the possibility that his own sons would within four years be orphans, must have seemed very remote indeed. Yet, a year later, both their mother and grandmother had died, and on the 8th of August, 1777, at the age of 47, Gronovius died suddenly. He was buried beside his wife and parents in the family vault in the Pieterskerk, on the 15th of August.

Gronovius's death was probably as unexpected as it was sudden, for no trace of a will can be found, nor was there apparently any provision made for the guardianship of his sons. The famous Gronovius collections were on view in Leiden on the 1st and 2nd of October, 1778, and were offered for sale on the 7th and 8th of that month; the library was sold on the 5th of October. It is possible that some of the more valuable of the mineral specimens, such as pearls and specimens of gold and silver, that were included in the manuscript *Lithophylacium*, were sold separately. A loose sheet of paper in that manuscript lists some of these substances, and against each is written a value in guilders. This may, however, be only a valuation for the purposes of the sale, for there are a number of precious metals listed in the sale catalogue.

As an example of the decline of his biological work with his increase in civic importance, the period from 1765 until his death is outstanding. During those years Gronovius published only two short papers in two journals, although his edition of the *Historiae Naturalis* of Plinius Secundus, which was published posthumously (1778) must have been almost complete, if not in the press, at the time of his death. Added to this, at his death, there were at least three unpublished manuscripts in varying stages of completion all of which have been preserved or published.

These were, the third fascicle of the *Zoophylacium* published by F. C. Meuschen[1] in 1781; the incomplete manuscript which Gray (1854) published, and a still unpublished manuscript, the *Lithophylacium*, a catalogue of the mineral specimens, fossils and other natural calcareous products in his collection. There were also two other manuscripts, which were mentioned by Boddaert in the letter of which a translation is given on p. 195. These have presumably perished.

There has been some confusion amongst authors as to the learned societies of which Gronovius was a member. This probably originated from the rather cryptic abbreviation of his personal titles which appear on the title page of the *Zoophylacium* —" Societatis Physico-Medicae Regiae Londinensis, Basilaeensis, atque Hollandicae Socius ". This has been freely translated (Higgins, 1950) into " member of several learned societies, including the Royal Physico-Medical Society of London ". It appears, however, that there has never been such a society in existence in London, although there was a Physico-Medical Society of London founded in 1771 (a copy of its rules, printed in 1774, is preserved in the British Museum), but this was eight years after Gronovius was using the title. This Society was not entitled to, and apparently never used the prefix Royal. The explanation lies in a less literal rendering than the above, and this gives the information that Gronovius was a Fellow of the Royal Society (of London), a member of the Physico-Medical Society of Basle, and the Dutch Society of Science at Haarlem. The Physico-Medical Society was founded in 1751 and a number of Gronovius's shorter publications were published in its journal, *Acta Helvetica*.

3. GRONOVIUS AND CONTEMPORARY ICHTHYOLOGY

It is not an easy matter to assess the influence that Gronovius had on the history of systematic ichthyology, but there can be little doubt that it was not great. It is, however, of interest to note that amongst his contemporaries at least he was held in some esteem. Linnaeus (1758 : 241) in his introduction to the section on fishes in the tenth edition of the *Systema*, ranked him as one of the " Ichthyologi Theoretici "; preceded only by Artedi and Linnaeus himself ! Another reference occurs in a letter written by Peter Collinson shortly after the publication of the *Museum Ichthyologicum*, to Linnaeus, (Smith, 1821). Collinson, a friend of the older Gronovius, wrote, " . . . young Gronovius, whom I much admire for dedicating his youth to useful knowledge."

Later authors were bound to take a more objective view, and Günther's assessment of Gronovius's influence, although seemingly severe, was nevertheless very near the truth. He wrote, " Two contemporaries of *Linnaeus* (Klein and Gronovius) attempted a systematic arrangement of fishes ; both had considerable opportunities for their study, especially in possessing extensive collections ; but neither exercised any influence on the progress of Ichthyology ". Detailed studies of the history of ichthyology have been given by a number of authors, so it is not necessary to enlarge on that subject here. The more ambitious accounts can be found in Cuvier & Valenciennes (1828), in Günther (1880) and in Jordan (1905), (the latter both owe an unacknowledged debt to the previous authors), and study of these will give a general idea of the role that Gronovius played in the history of the knowledge of fishes.

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[1] Frederic Christian Meuschen (1719–*ca.* 1800) was at one time Secretary to the Legation of Denmark and later to the Duke of Saxe-Coburg, at the Hague. He possessed a very fine collection of shells, and conchology was obviously his principal biological interest. He compiled many sale catalogues of zoological collections and at least ten are attributed to his authorship, including the catalogue of the Gronovius collection (1778) (Tomlin, 1942). A contemporary of Gronovius, it is very likely that they were familiar for both studied law at Leiden at the same period (Meuschen entered in 1742).

That Gronovius's work had so little lasting influence may seem rather surprising when one considers his undoubted ability in this field, and in view of the fact that his work usually exceeded that of his contemporaries in both volume and accuracy. Primarily, it may be attributed to the fact that he never attempted a complete account of the then known fishes, as for example, did Artedi (1738). Both his major works (the *Museum Ichthyologicum* and the *Zoophylacium*) were more concerned with description of specimens in the Gronovius collection than with a general account of fishes; and although the latter work did take into account some species which were not represented, it was only in a very superficial manner. This is also true of the manuscript published by Gray in 1854, which, although Gray supplied the title, could have been no more aptly named than as a " *Catalogue of Fish collected and described by Laurence Theodore Gronow* . . . " Had the work which Boddaert described (p. 195) as a *Historia Naturalis Piscium* been completed and published by the author, it may possibly have made a greater mark on ichthyology than any of his other works. Secondarily, I think that Gronovius's slight influence on later systematists can be attributed to his failure to adopt binominal nomenclature until after the major part of his work had been published.[1]

On the credit side, however, Gronovius excelled in the description of his specimens. A number of recent authors have commented on the clarity and accuracy of the descriptions in both his major works, and have favourably compared them with those of his contemporaries. Moreover, Linnaeus based many of his names either partly or wholly on his diagnosis of species. There were, in fact, a total of one hundred and thirteen references to Gronovius in the Pisces and Amphibia Nantes sections of the tenth edition of the *Systema Naturae.* and in the twelfth edition this number increased to one hundred and twenty-five. These figures give some idea of the importance of Gronovius's contribution to the *Systema,* in the tenth edition of which some four hundred fish species were recognized.

With regard to the classification of fishes that Gronovius adopted it has already been pointed out that it closely followed that proposed by Artedi. In the *Museum Ichthyologicum* he followed this system closely in the four classes of fishes, Malacopterygii, Acanthopterygii, Branchiostegi and Chondropterygii, while the Plagiuri were placed in a group apart as being " piscis cauda horizontali." His genera were with eight additions all after Artedi. In the first fascicle of the *Zoophylacium,* however, there is evidence of some original thinking, and, in addition to increasing still further the number of known genera, Gronovius abandoned the distinction between Artedi's Malacopterygii and Acanthopterygii (which had been distinguished by " Pinnis inermibus " and Pinnis aculeatis " respectively), and replaced them by the class

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[1] None of the fishes described by Gronovius have been accepted as binominal, with the exception of those published in Gronovius (1772), and those in the manuscript published by Gray (1854).

Branchiales. In this arrangement the Chondropterygii remained unchanged and included lampreys, sharks, rays, chimaeras and sturgeons. The Branchiostegi, however, had been greatly expanded, and although formerly embracing only the plectognaths, *Cyclopterus* and *Lophius*, now included *Muraena, Gymnotus, Syngnathus* and *Gonorhynchus*. This heterogeneous collection was further divided by variations in the position of the pelvic fins.

The major class of fishes, Gronovius's Branchiales, was divided according to the position of the pelvic fins, and each division arranged by the number of dorsal fins. This arbitrary splitting inevitably produced some strange bed-fellows, for example *Callyodon*, *Pleuronectes*, *Echeneis* and *Blennius* all adjacent in the same subdivision of the Branchiales. This was, however, certainly no worse in this respect than the classification that Linnaeus proposed in 1758, where there were several innovations, not all of which appear to have been justified, such as the removal of the Pisces Chondropterygii to form a group (Nantes) of the Amphibia. With the exception of the Branchiostegi, the remainder of the Linnaean (tenth edition) system departed from Artedi's still further, and was divided according to the presence or position of the pelvic fins, to form the Apodes, Jugulares, Thoracici and Abdominales. Although the two systems of Linnaeus in 1758, and Gronovius in 1763, appear to be widely different, particularly in their terminology, they both relied to some extent on the same characters, and in fact, approach one another fairly closely. It is, I think, possible that the classification of Gronovius was a modification of that of Linnaeus.

4. THE GRONOVIUS FISHES BETWEEN 1778 AND 1853

Both the collection of fishes and the manuscript describing them were purchased at the sale rooms of a Mr. Phillips in Bond Street, London, but beyond this little is known of their history between the death of Gronovius and their reappearance in London nearly eighty years later. Gray (1854) mentions that the other lots at the auction consisted of " . . . Bronzes and other objects of Vertu, imported from Paris ", but from this somewhat ambiguous statement it is not clear if the collection was also brought from Paris for the sale. He did, however, give a few details (1854*a*) of the London sale, which for the sake of their general interest are quoted here :

> " A box of dry skins of fish arranged between sheets of cartridge paper like a collection of dry plants, said to be accompanied by a MS. description, was offered for public sale in a collection of objects of *vertu* in Bond Street.
>
> " At the time of the sale and while on view the MS. could not be found ; however, as a slight examination of the specimens showed they were a partially named collection of about the time of Gronov (better known by his Latinised name of Gronovius), who was, without doubt, one of the best ichthyologists of the latter part of the last century, and by a person who used the names which he had introduced, and I found there were sundry Dutch names on the specimens, and the paper of Dutch manufacture, I considered the collection even without the MS. would be an advantageous purchase.

> " The day after the sale the MS. was found and delivered, and I was much pleased to find it consisted of 120 separate sheets of gilt-edged quarto letter paper, containing the generic and specific characters and detailed descriptions of the new species in the collection, with a reference to their synonyma, illustrated with 84 similar sheets, consisting of original drawings of the more important species, some engravings extracted from Gronovius's ' Museum Ichthyologicum ', and some of the original drawings from whence other figures in that work and the ' Gazophylacium ' (*sic*) of the same author had been engraved."

From his remarks it is evident that in the period between the Gronovius sale (1778) and the auction in London, this part of the collection had completely lost its identity. This, as Gray surmised, indicated that it had come through the hands of persons who were neither naturalists nor interested in natural history. Further testimony supporting this opinion is not difficult to find. Gray referred to the numbers that had been written against each genus in the manuscript and on the sheets of the collection, and also to the generic names which were written on the sheets. He, quite correctly, observed that it was evident that both numbers and generic names were additions to the manuscript by a hand not the author's, and in one or two instances the names were incorrectly spelled. In addition, there are several errors in correlating the specimens with the descriptions by means of these generic names and the numbers ; for instance, several widely different fishes were referred to the genus *Callorhynchus*. He also noted that from the appearance of both the box and the padlock fastening it (neither article has been preserved) it was doubtful if it had been more than cursorily examined since the death of the original owner. From all these points it can be concluded that the unknown owner (or owners) of the Gronovius fishes were not naturalists.

Although the fishes were included in the sale of the collection in 1778, they were not sold, and a letter dated 1791 (thirteen years after the death of Gronovius) shows that both the fish skins and the manuscripts relating to them were still in the possession of the sons and their guardians. This unpublished letter from Pieter Boddaert to Sir Joseph Banks, is of such interest in this connection that I quote a translation of the relevant portion of it, in full.

> Sir,
>
> M. van Dielen, a young nobleman of much merit is leaving for London with Mme. the Ambassadress and I take advantage of this to write to you to express my sincere regards ; and what is more, to inform you that the young M. Gronovius and the guardians of his brother have offered me the manuscripts of their father, the late L. T. Gronovius for publication. I can not refuse this kind offer and the confidence these gentlemen have been pleased to put in my humble talents. It includes descriptions of about three hundred fishes with drawings in Chinese ink of most of them. But M. Gronovius died twelve years ago ; and many of the books and observations of Mm. *Broussonet* as well as *Bloch, Gmelin,* . . . . and others, have been published and have enriched ichthyology, I will add these to the manuscript of M. Gronovius. There is still another manuscript containing

> Insects which is nearly complete and which will serve as a supplement to the *Zoophylacium.* Therefore, Sir, I ask for your patronage for this work and the honour of dedicating it to you, as much in my own name as in that of my friend Johannes Gronovius. I beg you, Sir, to agree to my request. The work of as great a man as the late M. Gronovius, dedicated to a man of whom all Europe knows ; the combination can surely not fail to succeed.
>
> In order to complete these descriptions, M. Gronovius the son, has sent me about 500 very well preserved dried fishes, and since he has become interested in old coins (of which he has a wonderful collection) he has commissioned me to sell them in England (because here natural history is dead, and France is too much occupied with revolutions and other troubles). Therefore, if the British Museum, or some amateur, perhaps yourself, Sir, or maybe M. Latham, M. Smith or the owner of the cabinet of M. Ashton Levers, would like to buy them, they can have them for fifty guineas, with all the descriptions and illustrations, for which the late M. Gronovius paid three florins each. The other works left by M. L. T. Gronovius are notes for a *Philosophia Ichthyologicum* and a *Historia Naturalis Piscium* which I intend to publish. Perhaps Sir, you will inform me as to whether you will do me the honour of accepting the dedication or not. I will not fail to have the work produced as attractively as the others . . . If you wish to reply to this letter M. van Dielen is returning in three months and will willingly be the bearer of it. He counts it as a great honour to know personally the man whom the learned of Europe admire . . .
>
> Finally, Sir, I end my letter by assuring you of my deepest respects and recommending my friend, I am
>
> Sir,
> Your very humble servant,
> Boddaert.
>
> Utrecht, the 6th August, 1791.

Unfortunately it has proved impossible to discover more than this tantalizing glimpse into the history of the fish collection between 1778 and 1853. I can find no record of Banks's answer to this first letter, although that he did reply is certain from the ensuing correspondence. In July 1793, Boddaert again wrote to Banks with news of the manuscript.

> Sir,
>
> I am taking the present opportunity to write you this letter, M. de Westreenen, Seigneur de Temaat is leaving for England accompanied by his wife, and they wish to be entrusted with my letter. I take the liberty, therefore, of recommending him as a very amiable man, who having completed his studies, made what is known as the Grand Tour, and after seeing Paris, Rome, Naples etc. came back to this country and applied himself to the study of Botany . . . We are, however, very poorly served in this Science and it is this ardour for Botany which has made him undertake the journey to England . . .
>
> M. de Te-maat (*sic*) will also be carrying my manuscript of M. Gronovius's

> works on fish, of which you have kindly accepted the dedication. I thank you for the obliging letter . . . I would willingly accept your offers but my income is too limited for me to see London and its treasures, although there is still hope of paying you a visit. Three or four months ago, I wrote to Mr. Whyte, printer of London, about the publishing of my manuscript and added your obliging letter as recommendation, but up to the present I have received no reply. M. de Themaat (*sic*) is entrusted to show my work to him or to choose another printer who will take it ; it is up to him.
>
> The unfortunate war[1] we have in our country has caused the taste for natural history to fall off, and I shall have to resolve the trouble by having the work printed in your fortunate country where the sciences are flourishing . . .
>
> Boddaert.
>
> Utrecht, 7th July, 1793.

Nor was this all, for in the next year (5th May, 1794) he wrote telling Banks that M. de Themaat had taken the manuscript to London, but had failed to find a publisher. The offer to sell the collection of dry fishes was never mentioned again, and it was not until sixty years later that approximately half of it came to the British Museum.

There is nothing further to add, save perhaps, to note that Boddaert died only two years after he wrote the last letter. In those troubled years he apparently never made his anticipated visit to London, nor succeeded in finding a publisher for the Gronovius manuscript.

In this context, however, it is of interest to mention the history of the only other part of the Gronovius collection that is known to be in existence to-day. In the Royal Library at the Hague there is an annotated copy of the rare sale catalogue of the Museum Gronovianum, and the notes are of interest in relation to the sale of the herbarium. At the foot of page forty-two, a note,[2] in an unknown Dutch hand, reads ;

> "The Herbarius Vivus whose principal value consisted of the Virginian plants that formed the basis of the *Flora Virginica* written by Dr. Jo. Fred. Gronovius with the assistance of Dr. Car. Linnaeus, of which plants a part was missing and possibly to be found at Vienna at Mr. Jacquin's, was bid up to 350 guilders by several bidders ; to 625 guilders by D. van Royen, a price exceeding the value in the opinion of all connoisseurs ; and was bought by the bookseller Bennet of Rotterdam on behalf of Lord Bute of London, at 650 guilders. The commission was practically unlimited."

To which, perhaps rather envious note, was added,

> "The bookseller told me that he regretted to stand in my way ; and afterwards when he had become the buyer, that he had a commission of £250–£300, and moreover need not stint a bagful of Dutch guilders."

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[1] The Napoleonic Wars.

[2] During my own short visit to Holland I was unable to see the work in the Koninklyjke Bibliotheek at the Hague, and I am indebted to Dr. W. H. van Seters for the translation from the Dutch, and indeed for drawing my attention to this annotated copy of the *Museum Gronovianum* in the first place.

This passage, however, appears to contradict Murray's (1904) statement, for which he gave no authority, that " John, Earl of Bute, . . . bought it (the herbarium) for £90 in 1778 ".

The new owner of the herbarium was John Stuart, third Earl of Bute (1713–94), at the time of Gronovius's death a prominent political figure in England. He formed a famous collection of paintings, astronomical and mathematical instruments, and a vast botanic garden, from which presumably sprang his interest in the herbarium. His prints, part of his library and his natural history specimens were sold after his death, and at the sale Sir Joseph Banks purchased both the herbarium and part of the library. Eventually, after Banks's death the collection passed to the British Museum, and is now preserved in the general herbarium of the British Museum (Natural History). Part of the library of Gronovius evidently followed the same course as the plant collection, for in the library of the British Museum there is preserved a (Banksian) copy of Leonhart Rauwolf's (1583) travels, with a note on the flyleaf, " Exemplar hoc est qus usus est Johannes Fridericus Gronovius in adornanda Flora Orientalis quisque annotationes manu propri addidit ".

5. THE MANUSCRIPT

As neither the authorship of the manuscript nor the identity of the collection were known at the time of the sale in London, Gray listed several reasons why he ascribed it to Gronovius, although he had apparently little doubt that it was the Gronovius collection. His chief evidence was that several of the illustrations in the manuscript are the originals of figures in the *Museum Ichthyologicum*, the *Zoophylacium* and other illustrations of Gronovius's published works, but it should be added that the manuscript is written in the same hand as the manuscript *Lithophylacium*, which has the author's name on the title page, and as the Gronovius letters preserved by the Linnean Society of London.

The manuscript consists of one hundred and twenty separate sheets of quarto paper, together with eighty-five sheets of illustrations. Gray arranged the loose sheets in the order in which the work was published, and they are now bound with the illustrations (which were not published) inserted at the end of the genus to which they refer. The illustrations are the work of possibly six artists, three of whom have signed their drawings. The majority are by Isaac la Fargue van Nieuwland (1726–1805), whose signature appears on nineteen of them, and to whom I ascribe a further thirty-two ; there are also three others which may be his work. The signature J. J. Bylaert appears on two plates ; one, a pencil sketch, and the other a fine sepia chalk drawing (Plate 27) of the *Raja rhinobatus* of the manuscript (1854 : 10). Four more of the illustrations are in the same medium, and as their style closely resembles that of the above I assume that these also are the work of Bylaert. There are in addition three pencil sketches which are probably his work. The third illustrator was A. Delfos whose signature appears on the original of one of the figures of *Scorpaena monstrosa* Gronovius 1854 published in the *Zoophylacium* (tab. 11, fig. 1) ; the other two drawings of this fish are obviously by the same hand. There is a possibility that he is also the author of four other unsigned drawings. There are sixteen illustrations which are the work of possibly three other unknown artists. Eleven of the total of eighty-five illustrations are " engravings extracted from the published works of the author " and these, probably cut from a copy of the *Zoophylacium*, are mounted on the same gilt-edged, quarto paper as the remainder of the manuscript. I have already commented (Wheeler, 1956) on Gronovius's habit of reproducing the figures of his earlier works to illustrate his later ones, and he obviously intended to follow this course with the manuscript if it had been published.

The earliest artist working for Gronovius was probably Abraham Delfos. Several of the plates in the *Museum Ichthyologicum* (I–III), the *Zoophylacium* (XI–XIII) were his work, as was the figure accompanying the description of *Cyclogaster liparis* in *Acta Helvetica* (1760). An unpublished drawing by Bylaert is dated 1768, and he contributed at least one of the figures to the *Zoophylacium* (pl. IX) and probably several more. To some extent these dates limit the period in which the manuscript was written ; Gray (1854*a*) assumed that it was prepared between 1774 and 1777, and fixed the earlier date as several of the van Nieuwland drawings are dated 1774, although he also mentioned the one signed " J. J. Byland (Bylaert,) 1768 ". I am inclined to agree with this opinion, but as the manuscript was largely an extension and revision of the first fascicle of the *Zoophylacium*, it is quite possible that Gronovius began compiling it shortly after the completion of that work. To rely entirely on the dates of the illustrations may, however, give a false impression, as there is no guarantee that the artist was working at the same time as the author. Indeed in the case of van Nieuwland, who normally resided at the Hague, it is quite probable that all his drawings were executed during 1774 (the date on a number of them) when he was living in Leiden. It was during this period that he painted the portrait of Gronovius which now hangs in the Lakenhal Museum, in Leiden (Pl. 26). It would be interesting to know for certain, as seems likely, if he was the artist whose work was that " for which the late M. Gronovius paid three florins each ".

From internal evidence we can be fairly sure that the manuscript was commenced between 1766 and 1772, and that parts of it were not written until as late as 1775, although the fact that the descriptions of several genera (*Mystus* and *Dascillus* for example) were never finished, show that it was still incomplete at the time of his death. Several fishes still preserved in the collection which were not mentioned in the manuscript, may be another indication of its unfinished state. The reason for giving the later date as 1772, is that in that year Gronovius published a note on several fishes, amongst them a *Calloryncхus americanus*, and in the description of it he referred to two other species of that genus—*C. atlanticus* and *Calloryncho elephantino*. Although neither name is valid as of that date they were again used in the manuscript when they were reinforced with adequate descriptions. This is, I think, adequate proof that this part of the manuscript was already written at that time. That the author wrote part of it after 1775 is conclusively proved by the reference in the synonymy *Muraena myrus* (1854 : 20), to *Muraena cinerea* Forskål. This name was given to a species described in Forskål's *Descriptiones Animalium* (: 22, n. 2), which was not published until 1775. The many references to the twelfth edition of the *Systema Naturae* in the synonymies of different species indicate that it was not begun until that work had been published in 1766, for these references are obviously contemporary, and are not additions to an existing text.

To summarize the evidence relating to the date of the manuscript, it is very likely that it was begun shortly after 1766, and certainly was in preparation before 1772, and continued in this state until the author's death in 1777. The dates of the illustrations to some extent verify this conclusion for two are dated 1768 and the majority 1774.

6. THE COLLECTION OF FISHES

One characteristic of the collection which has never failed to attract attention, is its method of preservation, dry and " arranged between sheets of cartridge paper like a collection of dry plants " (Gray, 1854*a*). This method of preserving the skins was very successful and the specimens are, in general, in a much better state of preservation than many dried skins and stuffed specimens collected a century later. Fortunately we know the details of the method used to preserve these specimens, for on the 4th of March, 1742, Peter Collinson read to the Royal Society a communication on " *A* Method *of preparing* Specimens *of* Fish, *by drying their* Skins, *as practised by* John Frid. Gronovius[1] *M.D. at* Leyden ", which was later printed in the *Philosophical Transactions* (1744). This note is fully reproduced.

" *There are requisite for this Purpose.*

A Pair of Scissars, with very fine Blades, and sharp Points.
Small wooden Plates (of the Lime-tree, or wooden Trenchers).
A very fine Needle.
Slips of Parchment as large as the Fishes.
Minnikin Pins, or small Pins.

" Take hold of the Fish with your Left Hand, so as that the Belly may be towards the Hollow of your Hand, and its Head pointed to your Breast. Then with the Needle make a Wound behind its Head, into which introduce one of the Points of your Scissars, cutting gently from thence along to the Tail. If you would preserve the Right Side, the Scissars are to be conducted on the Left Side of the Fins. This being done from the Head to the Tail, the Scissars are to be pointed deeper, and the Flesh divided quite to the Back-bone. Then turn the Fish with its Back downwards, and its Belly upwards, and proceed in the same manner, cutting with the Scissars through both the Head and Jaws. Take away the Brain and Gills. The Fish then easily parts, the Intestines appear, which may be easily taken away. The Back-bones are then cut assunder, the Fish is to be washed, rubbed till it is dry with a Linen Cloth, and placed upon a Board, in such a manner as that the Skin, covered with its Scales, may lie uppermost, and all the Fins and Tail are to be expanded with Pins. Let it then be exposed to the Sun, if in Summer, or, if in Winter, to the Fire, till the Skin grows quite dry and hard, when it must be turned, and the Flesh exposed to the Sun or Fire, till it is also dry ; and then the Skin may be separated from the Flesh with very little Trouble, and, being put betwixt Papers, must be pressed flat. But as a sort of glutinous Matter, in pressing, is always forced out from betwixt

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[1] Günther (1880) and other authors, have erroneously credited the younger Gronovius "with the invention of preparing flat skins of fishes in a dry state and preserving them in the manner of an herbarium ".

> the Scales and the Skin, a Piece of Parchment is to be laid under the Fish, which is easily separated from the Scales, but Paper always sticks: for this Reason it is necessary, that after an Hour or two, a fresh Piece of Parchment should be applied: And thus, in the Space of 24 Hours, the Fish is prepared."

Even this account, full as it is, was further amplified by J. F. Gronovius when writing to John Bartram in America;

> " I sent at this occasion to you a few specimens of dryed fishes, to be kept as plants in an Herbarius; the great misfortune is, that the colour perish, else it shows a good way to find out the characters 1. by nummer of the bones in the membrana branchiostega, which you see in the flying Trigla marked with blak; 2. by the nummer and position of the Fins, and the bones in them. 3. by the Course of the linea lateralis running in each fish from the blak (back ?) part of the head to the tail. *Hebenstreit*[1] a professor at Leipsich hath invented this methode, but he never would communicate the way to prepare them so; till at last I found it out a few years ago . . . ".

There is little doubt that most of the specimens in the collection are preserved by this method, and some of the skins bear small holes and show signs of stress where the " Minikin pins " had stretched them in drying. There were, however, other methods of preservation used, for the portrait of L. T. Gronovius (Pl. 26) shows animals preserved in bottles (probably of spirits of wine). Although preservation in spirit was accompanied by greater risks than any other method, it was more commonly used at this time than is generally realised to-day.

There appears to have been some variation in the preservation of the skins, for some are coated with a thin, still almost transparent varnish, while others have a very thick inferior coating, a difference due, no doubt, to their varying origins. The skins sent by Alexander Garden to Gronovius (and to Linnaeus), were prepared in America, and mounted on paper in Europe, for the collector had written a serial number in ink on each skin—and this obviously could only have been done to dry specimens.

While discussing the subject of the preservation of the collection it is interesting to refer to another letter that the elder Gronovius wrote to Bartram, dated Leyden, 2nd July, 1746, which reads,

> " . . . all things you send to me come very well over, except the two fishes, which were spoiled. I take therefore the liberty to communicate to you two prescriptions, of which one is a varnish that preserves the fishes, and any other thing, in a great perfection, *viz*:
>
> Gumm Copal ℥iij
> Masticheſ
> Sandarach ā ℥ij
> Spirit. vini rectificantes lb. ijss
> M. lege artis.

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[1] Johan Ernst Hebenstreit travelled in Africa, and returned with a large collection in 1735, when he was elected Professor at Leipzig, where he died 5th December, 1757.

> "The other is a powder, by which any creature, as quadrupeds and birds, are preserved and become very hard. I have several times made the experiment with a fowl, larger than a duck, putting him, with his excrementae and all, into a box, which is well closed, and putting this dose of a powder all over it : when the creature becomes in a few weeks very hard.
>
> Pulv. aloes ℥iij
> Myrrhae ℥ij
> Sulphur
> Alumin. ā ℥j
> M. f. pulvis.[1]
>
> "I don't doubt it will do very well with the fishes, without taking the intestines out of them, except that they may not be too thick ; then the intestines must be careful (by a gentle hole, made in the mid of the belly) taken out."

The whole collection of fish skins was mounted on folio sheets of good quality paper with usually one specimen, sometimes more, depending on their size, fastened to each sheet. Some sheets bear the name given to the specimens in the manuscript, and probably all were so named. Unfortunately Gronovius wrote in pencil in the bottom left hand corner of the sheet, and the dust, and rubbing against the sides of the original box had combined to obliterate many of these names, when Gray wrote in 1854. The subsequent treatment of the collection has aggravated this defect. In addition to these, many generic and Dutch vernacular names, and serial generic numbers (mentioned earlier) have been added by an unknown hand (one suspects Boddaert). The register number of this Museum has been added to the sheet since its acquisition and Günther wrote his identification under each specimen. It is to be regretted that several specimens have been cut out of their sheets in the last fifty years, an action which although it may have made the specimen more easily examined, has for certain, resulted in the destruction of several of the original names written by Gronovius, and has disrupted the continuity of the collection.

7. CONTRIBUTORS TO THE GENERAL COLLECTION

Unfortunately we have little knowledge of the way the collections were built up, but it has already been pointed out that they were the work of both father and son, a fact that appears to have escaped general notice. As I have pointed out elsewhere (Wheeler, 1955) a large part of it was acquired as gifts from various naturalists in

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[1] These formulae translate as follows :

Copal	3 apothecaries' ounces (30 grms.).
Mastic Sandarac	Of each 2 apothecaries' ounces (20 grms.).
Rectified spirits of wine (90% ethyl alcohol)	2½ apothecaries' pounds (350 cc.).

Mix according to the law of the art.

Powdered aloes	3 apothecaries' ounces.
Myrrh	2 apothecaries' ounces.
Sulphur Alum	Of each 1 apothecaries' ounce.

Mix to form a powder.

foreign lands with whom they were in correspondence. This was, of course, the manner in which the famous collection of Clayton's Virginian plants came into the possession of the elder Gronovius, and his correspondence with other American naturalists contains many references to sending specimens or addressing packets.

Another collector, this time an Englishman whose main interest was in mineralogical specimens, was William Borlase, author of *The Natural History of Cornwall* (1758). His name occurs very frequently against various minerals in the manuscript *Lithophylacium*, and possibly he sent the Cornish specimens listed by J. F. Gronovius in his *Index Lapideae* . . . (1740). Borlase had evidently sent a considerable collection to Leiden, and he mentioned this correspondence with the elder Gronovius in the preface to his work. The *Lithophlyacium* also contains the names of many persons who enriched the Gronovius cabinet with other gifts, and here Bartram, Neese and Jacquin are frequently mentioned; Scopoli, Meuschen, Poda, Brunnich, Gmelin and Pennant occur less frequently. Similarly, the *Zoophylacium* also contains the names of many donors of specimens and in the first fascicle we find the names of Luyx Massis, Arnold Vosmaer, Johannis Ammani, Cornelius van Hoey, Wilhelm Kramer, Alexander Russell and Johan d'Annone.

Of those mentioned we need only concern ourselves particularly with two, both of whom presented a number of specimens of fish still preserved. Daniel Luyx Massis (to whom as "Amicorum optimo", the second fascicle of the *Zoophylacium* was dedicated), obtained many of his specimens "from the Governors of the India Company, Surinam etc." (Index to the State Archives at the Hague.) He was a director of the West India Company. The second, Arnold Vosmaer, was the owner of a large collection purchased in 1766 by the widow of Prince William IV, which formed the basis of the cabinet of the Stadholders. Vosmaer was appointed director of the cabinet and its adjacent menagerie (Engel, 1939).

The period in which the collection was made (which I regard as taking about forty years i.e. *circa* 1737–77), coincided with a peak of Dutch colonial expansion, and specimens were probably collected and brought back by the crews of the sailing ships, perhaps at the special request of Gronovius, or maybe, only for sale to the curious. Certainly, this is the impression given by J. F. Gronovius, who wrote to Cadwallader Colden (6th August, 1743).

> "I get by our men of war an immense collection of natural things, of which my chiefest delight is in the Lapides and Testacea . . . "

One can be sure that of the specimens collected by the crews of "our men of war" fishes would be in a high proportion.

8. SYSTEMATIC CATALOGUE

In this catalogue of the Gronovius fishes, all the skins preserved in this Museum have been identified so far as their state of preservation will allow. Under each name are given the references to works in which Gronovius described the specimen, and also the name he applied to it in the manuscript published by Gray (1854). The entry concludes with the register number of this Museum and a note of the standard length on the skin. In the Marsipobranchii, Selachii, and Apodes, however, the length given is the total length. In a number of cases where these specimens are the sole types of an early described species, a short description of the skin has been given. As far as possible these descriptions have been drawn up using the methods adopted by recent workers on the group, but this has not been possible in all cases. A list of measurements of various parts of the specimen precedes these descriptions, and the figures in parentheses following these measurements represent that length as a percentage of the standard length; it should be stressed, however, that in measuring dry material a certain inaccuracy must be taken into consideration. This is primarily caused by the shrinkage of the skin on drying.

MARSIPOBRANCHII

PETROMYZONIDAE

Lampetra fluviatilis (L.), 1758

Mus. Ichth. **1**: 64, 144. *Zoophyl.* **1**: 38, 159.
Petromyzon fluviatilis, Gronovius (Gray), 1854: 2.
1853.11.12.209. 149 mm.

Lampetra planeri (Bloch), 1784

Zoophyl. **1**: 38, 160.
Petromyzon branchialis L., Gronovius (Gray), 1854: 2.
1853.11.12.208. 147 mm.

SELACHII

PLEUROTREMATA

Orectolobidae

Chiloscyllium indicum (Gmelin), 1788

Mus. Ichth. **1**: 61, 133. *Zoophyl.* **1**: 34, 150.
Squalus caudatus Gronovius (Gray), 1854: 8. Holotype.

As Gmelin (1788) based the name *Squalus indicus* solely on the description in the *Zoophylacium* this specimen must be regarded as the holotype of that species. This is also the case with Shaw's (1804) name *Squalus gronovianus*.

In the description in the *Museum Ichthyologicum* the statement " pinna ani nulla " has led to much confusion, causing Günther (1870) to state that " the anal fin is cut away ". Regan (1908), however, pointed out, " it is true that the species was described by Gronov as lacking an anal fin, but this was because he made the very natural mistake of regarding the anal fin as part of the caudal, as is evident from his description (1854): ' Lobis qui subtus caudam occupant bini lineares, longi, aequales convexi '."

1853.11.12.205. 274 mm.

Snout to eye	16 (6)
,, ,, first dorsal	105 (38)
,, ,, second dorsal	156 (57)
,, ,, pectoral origin	39 (14)
,, ,, pelvic origin	79 (29)
,, ,, anal origin	190 (70)
,, ,, upper caudal origin	212 (78)
Space between dorsals	36 (13)
Space between second dorsal and caudal	43 (16)
First dorsal base	10 (4)
Second dorsal base	11 (4)
Front edge of first dorsal	16 (6)
,, ,, ,, second dorsal	14 (5)
Body depth behind first dorsal	17 (6)

This skin of a small female is much shrunk, particularly anterior to the pelvic fins, which has made accurate measurement very difficult. Examination of the teeth is also very difficult as the jaws have shrunk inwards and less than half of each jaw remains.

Head approximately 7·5 times in total length of the body, mouth ventral. Pectoral relatively large, its length almost equal to the head length. Body long and slender, tapering posteriorly. First dorsal fin placed well back, about its own basal length behind the pelvic fins ; the fin is small, rather higher than long, with a rounded upper angle, and a rather rectangular lower angle, and both the margins apparently slightly convex. The second dorsal fin is similar in shape and size to the first, but is slightly less high. The upper lobe of the caudal fin is much reduced and rises above the middle of the base of the anal fin, but at the tip of the tail it is expanded to nearly the same height as the lower lobe. The anterior lower lobe of the caudal is relatively long and low, and is a little less than the head length. The anal fin lies immediately before the anterior lower caudal lobe and is almost exactly of the same dimensions.

Colour : The skin is now largely a uniform dark brown ; anterior to the pelvic fins no colour pattern can be distinguished. Below the first dorsal, however, there are two vertical, irregular darker lines nearly as far apart as the base of the fin, and posterior to this a number of similar markings can be distinguished. Above the anal fin the marks are more distinct and there are six dark bands from the origin of the anal fin to the tip of the caudal fin, and a dark spot in the area of the last vertebrae.

CARCHARINIDAE

Carcharinus longimanus (Poey), 1861

Zoophyl. **1** : 32, 143.
Squalus carcharias (*non* L.), Gronovius (Gray), 1854 : 5.

The description in the *Museum Ichthyologicum* (**1** : 63,138) may also refer to this specimen, although there it is stated that a whole young fish, presented by Luyx Massis, was described.

1853.11.12.204. 400 mm.

Mustelus mustelus (L.), 1758

Mus. Ichth. **1** : 62, 135. *Zoophyl.* **1** : 31, 142.
Squalus mustelus, Gronovius (Gray), 1854 : 4.
1853.11.12.203. 290 mm.

SQUALIDAE

Squalus acanthias L., 1758

Mus. Ichth. **1** : 61, 134. *Zoophyl.* **1** : 34, 149.
Squalus acanthias, Gronovius (Gray), 1854 : 8.
1853.11.12.206. 225 mm.

SQUATINIDAE

Squatina squatina (L.), 1758

Zoophyl. **1** : 34, 151.
Squatina angelus Gronovius (Gray), 1854 : 14. Holotype.

The use of the specific name *angelus* in the manuscript, appears to have been independent of its use by de Blainville (1825), forty-eight years after Gronovius's death.

1853.11.12.207. 251 mm.

HYPOTREMATA

Torpedinidae

Dasyatis pastinaca (L.), 1758

Mus. Ichth. **1** : 64, 141. *Zoophyl.* **1** : 37, 158.
Pastinaca laevis Gronovius (Gray), 1854 : 11. Holotype.
1853.11.12.200. 400 mm.

Narke capensis (Gmelin), 1788

Zoophyl. **1** : 35, 152, " Habitat ad promontorium Bonae Spei ".
Torpedo capensis (*non* Gmelin) Gronovius (Gray), 1854 : 13. Holotype.

The description in the *Zoophylacium* is the only reference given by Gmelin (1788 : 1512), this specimen is thus the holotype of his *Raja capensis*.

1853.11.12.202. 235 mm.

Disc width	132	(56)	Snout to first dorsal	174	(74)
,, length	127	(55)	Base of first dorsal	11	(5)
Snout to eye	22	(9)	Height of first dorsal	14	(6)
Interorbital width	15	(6)	Space between first dorsal and caudal base	12	(5·5)
Diameter of orbit	3·5	(1·5)			
Diameter of spiracle	6·5	(3)			

The skin of this specimen is thin and shrivelled and exact measurement is very difficult. The whole of the ventral surface has been cut away, with the exception of the area around the pelvic fins. The presence of small claspers shows this individual to have been a young male.

The disc is practically circular, but with a slight lateral compression, its width being only slightly less than its length, and 56% of the total length. The tail length is equal to the length of the disc minus the snout. The snout, measured from the anterior edge of the orbit is 1·4 times the interorbital width, which is 4·3 times the diameter of the orbit. The spiracles are large, almost twice the diameter of the orbit with the edges slightly crenulate.

The dorsal fin rises well behind the pelvics, its base is only slightly less than the interspace between the dorsal and the origin of the caudal, and 1·3 in its height. The anterior profile of the fin is strongly convex, with a rectangular hind angle. The origin of the upper lobe of the caudal fin is slightly posterior to the lower lobe ; which is the least developed.

The colour is a dark sandy brown around the edges of the disc and along the sides of the trunk, while the median portion of the disc and trunk are a much darker brown. Both the dorsal and the caudal fins are dark brown and the edges of the spiracles are black. The claspers and the adjacent portion of the pelvic fins are lighter, almost yellow.

RAIIDAE

Raja montagui Fowler, 1910

Mus. Ichth. **1** : 64, 142. *Zoophyl.* **1** : 36, 155.
Raja miraletus L., Gronovius (Gray), 1854 : 9.
1853.11.12.197. Disc length 120 mm.

Raja clavata L., 1758

Mus. Ichth. **1** : 63, 140. *Zoophyl.* **1** : 36, 154.
Raja clavata, Gronovius (Gray), 1854 : 9.
1853.11.12.198. Dorsal surface, disc length 81 mm.
1853.11.12.199. Ventral surface, disc length 75 mm.

Raja clavata L., 1758

Zoophyl. **1** : 37, 157.
Raja leiobatos Gronovius (Gray), 1854 : 10. Holotype.
1853.11.12.201. Disc length 155 mm.

OSTEICHTHYS

ACIPENSERIDAE

Acipenser sturio L., 1758

Mus. Ichth. **1** : 60, 131 ; **2** : 42. *Zoophyl.* **1** : 30, 140.
Acipenser sturio, Gronovius (Gray), 1854 : 3.

The first description was probably compiled from earlier works, but in the second fascicle of the *Museum Ichthyologicum* there is a very full account including anatomical details. This description was referred to by Linnaeus, and the present specimen may thus be part of the original type material, although it would seem more likely that the specimen so fully described by Gronovius was larger than the present very small individual.

1853.11.12.210. 496 mm.

PISCES

ISOSPONDYLI

CLUPEIDAE

Brevoortia tyrannus (Latrobe), 1802

Clupea carolinensis Gronovius (Gray), 1854 : 140. Holotype.

This specimen has an ink " No. 16 " on its side, and was part of Alexander Garden's collection from Carolina.

1853.11.12.109. 101 mm.

Clupea harengus L., 1758

Mus. Ichth. **1** : 5, 21. *Zoophyl.* **1** : 111, 348.
Clupea harengus, Gronovius (Gray), 1854 : 139.

In the *Museum Ichthyologicum* Gronovius distinguished between two unnamed varieties (" a " and " b ") of this species. They were characterized by " a " having eight rays in the ventral fin and sixteen in the anal, while " b " had nine ventral rays and only ten in the anal. The low anal count of the second variety is well outside the normal variation of the species, and Gronovius's specimen must have been either a teratological condition or damaged. Examination of the anal fin of the larger of these specimens shows it to have only ten rays, and there is every indication that the posterior rays have been damaged. For this reason I regard this specimen as being the one from which Gronovius drew up his description. The smaller specimen agrees very well in fin ray counts, with the specimen from which he described his variety " b ".

The name *Clupea harengus* was based by Linnaeus on a specimen in his own collection, and on descriptions by Gronovius (variety " a "), and Artedi (1738, **3** : 31). The smaller specimen is therefore probably part of the type material of this species.

1853.11.12.111.	185 mm.
1853.11.12.112.	236 mm.

Alosa alosa (L.), 1758

Mus. Ichth. **1** : 6, 23. *Zoophyl.* **1** : 111, 347.
Clupea alosa, Gronovius (Gray), 1854 : 139.

Gronovius (1754) recognized two varieties of this species ; one with twenty anal rays and eight pelvic rays, and the other with seventeen anal rays and seven pelvic rays. Linnaeus (1758) specifically indicated that the Gronovius specimen he recognized as *Clupea alosa* had twenty anal rays (D.18. P. . . . V.8. A.20. C. . . .); he named the species from a specimen in his own collection, and by reference to descriptions by Artedi (1738, 3 : 34), Gronovius and Hasselquist (1757 : 388).

Of the present specimens the smaller seems to have been utilised by Gronovius in his description, for the counts of fin rays recently made on this specimen agree exactly with those published. This specimen is therefore probably part of the type series. The larger specimen has seventeen rays in the anal fin, and I suspect that this low number may be due to damage in the preparation of the specimen.

1853.11.12.179.	155 mm.
1853.11.12.180.	306 mm.

SALMONIDAE

Thymallus thymallus (L.), 1758

Mus. Ichth. **2** : 12, 162, " Inhabitat Rhenum propre Basileam ". *Zoophyl.* **1** : 122, 375.
Salmo thymallus, Gronovius (Gray), 1854 : 153.

The name *Salmo thymallus* was based by Linnaeus on three earlier descriptions ; one by Artedi (1738, **3** : 41), his own description in the *Fauna Svecica* (1746 : 314) and to the *Museum Ichthyologicum* (although the number quoted in his reference is incorrect.) Neither Artedi's nor Linnaeus's specimens appear to be extant, and this present specimen is probably the only remaining part of the type series.

1853.11.12.159.	139 mm.

Coregonus oxyrinchus (L.), 1758

Mus. Ichth. **1** : 18, 48. *Zoophyl.* **1** : 122, 374.
Salmo oxyrhynchus, Gronovius (Gray), 1854 : 152.

Linnaeus based this name on two descriptions by previous authors, Artedi (1738, **3** : 37), and Gronovius. The fin ray counts given by Gronovius agree very well with those made on this specimen, and it may therefore be regarded as part of the type series.

1853.11.12.160. 343 mm.

GONORHYNCHIDAE

Gonorynchus gonorhynchus (L.), 1766 Plate 28, fig. 2.

Zoophyl. **1** : 55, 199, tab. 10, fig. 2.
Cobitis gonorhynchus, Gronovius (Gray), 1854 : 41, " Patria. Promontorium Bonae Spei ".

Linnaeus based his name *Cyprinus gonorhynchus* solely on the reference to the *Zoophylacium* and this specimen is therefore the holotype of the species.

1853.11.12.120. 187 mm.

Head length	32 (17)	Diameter of orbit . . .	8 (4)
Snout to pectoral base . .	38 (20)	Body depth at pectoral . .	20 (10)
,, ,, pelvic base . .	125 (66)	,, ,, ,, dorsal . .	18 (9)
,, ,, dorsal fin . . .	132 (70)	Base length of dorsal . .	14 (7)
,, ,, anal base . . .	159 (84)	,, ,, ,, anal . .	11 (6)
,, ,, orbit . . .	13 (7)	Depth of caudal peduncle .	10 (5·5)

Dorsal 13. Anal 9. Pelvic 9. Pectoral 11.

Body slender, tapering, covered with many rows of small ctenoid scales, head also scaled with pointed snout and ventral mouth. Head length about six in the standard length ; snout 2·5 times in head : orbit[1] about four in head. Dorsal fin origin in the last third of body, rising immediately posterior to the pelvic fins. Of the thirteen dorsal fin rays, the first two are very short and inconspicuous, and the longest ray a little greater than the dorsal base, which is 2·3 times in the head. Origin of the anal fin midway between the origin of the dorsal and the caudal. There are approximately 163 rows of scales between the upper edge of the operculum and the origin of the caudal rays ; 19 rows above the lateral line to the base of the dorsal and 12 below to the pelvic base.

The colour is almost a uniform golden-brown, but lighter ventrally than above. There is a suggestion of a dark patch on the snout, and on the edge of the operculum. The membranes of the upper pectoral fin rays, the pelvic fin, the upper dorsal fin and parts of the caudal fin are dark, but the forepart of the anal fin, the hind edge of the dorsal and the tips of both caudal lobes are conspicuously lighter.

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[1] In life the eyes of these fishes are covered with a thick layer of skin and in the preparation of this specimen most of the bony orbit has been removed, consequently it is difficult to make an accurate measurement.

HAPLOMI

UMBRIDAE

Umbra krameri Walbaum, 1792

Zoophyl. **1** : 114, 355, " Habitat in Danubio ".
Umbra lucifuga Gronovius (Gray), 1854 : 143. Holotype.

It is worth noting that the name *Umbra catulus* proposed by Meuschen in the *Museum Gronovianum* (1778), antedates the name applied by Walbaum, although it is not now available for use (Opinion 260). The skin is badly damaged, the whole of the mid-part of the body being missing.

1853.11.12.98. 87 mm.

ESOCIDAE

Esox lucius L., 1758

Mus. Ichth. **1** : 9, 28. *Zoophyl.* **1** : 117, 361.
Esox lucius, Gronovius (Gray), 1854 : 146.

Linnaeus quoted only two references under this name, the first was to a description by Artedi (1738, 3 : 53), the second to Gronovius. This specimen should therefore be regarded as part of the type series.

1853.11.12.114. 165 mm.

INIOMI

SUDIDAE

Paralepis sp.

There appears to be no reference to this specimen in the manuscript published by Gray (1854). The specimen bears the figure 8 in the top right corner of the sheet on which it is mounted, but in the manuscript this refers to the genus *Callorhynchus*. The specimen is rather distorted but bears some resemblance to a specimen of *Paralepis speciosus* of comparable size. The right side of the head is also preserved on the same sheet.

1853.11.12.216. 85 mm.

GASTEROPELECIDAE

Gasteropelecus sternicla (L.), 1758 Plate 29, fig. 3.

Mus. Ichth. **2** : 7, 155, tab. 7, fig. 5. *Zoophyl.* **1** : 135, 409.
Gasteropelecus sternicla, Gronovius (Gray), 1854 : 171.

Linnaeus based his *Clupea sternicla* on two specimens, one of which was in his private collection, for he gave fin ray counts and a brief diagnosis but made no reference to any published work. The description in the *Museum Ichthyologicum* was also referred to, and thus this specimen has type status. Günther (1864 : 343) claimed this as the type of the species, and Fraser-Brunner (1950) mentioned " the type from Surinam ", but neither author apparently considered the status of the Linnaean specimen, although neither Günther (1899) nor Lonnberg (1896) list the specimen in the recognized Linnaean type material.

Gronovius failed to notice the adipose fin on his specimen, and he neither figured it nor mentioned it in his description, and at first sight I considered that it belonged to a genus lacking this fin (e.g. *Carnegiella*) but after careful examination it can be distinguished adhering to the back of the skin, and concealed by the varnish.

1853.11.12.211. 41 mm.

Head length	10·5	(25)	Depth of caudal peduncle	4	(10)
Snout to orbit	2·5	(6)	Last dorsal ray to caudal origin	9·5	(23)
,, ,, dorsal origin	29	(71)	Length of pectoral fin	20	(49)
,, ,, anal origin	28·5	(69)	,, ,, dorsal base	4	(10)
Diameter of orbit	3	(7)	,, ,, anal base	12	(29)
Greatest depth of body	20	(49)			

Dorsal 11. Anal 28.[1] Pectoral 11.

Body deep, greatly compressed laterally, and covered with conspicuous scales; head small, about four in standard length, snout 4–5 times in head. Dorsal fin short and not high, origin in last third of body, anal long, origin almost beneath dorsal fin. There are 33 scales in a longitudinal series from the upper edge of the operculum to the caudal origin. (This number fails to agree with the 28 given for this species by Fraser-Brunner.) In the series running from the origin of the anal fin to just behind the dorsal base there are 13 scales. Predorsal scales 22.

The mandible bears a single row of 7 tricuspid teeth, while there are 10 tricuspid teeth in the premaxillary but only 2 maxillary teeth.

The colour is a uniform brown. The upper two rays of the pectoral fin appear to be darker than the rest of the rays. Most of the scales on the thoracic keel are missing which makes it impossible to describe any markings on the keel, while the pectoral fin covers the area of the lateral band, if present. The scales above the anal fin still retain their striking iridescence.

GYMNOTIDAE

Sternopygus carapus (L.), 1758

Mus. Ichth. **1** : 29, 72, " Vivit in Surinamae Brasiliaeque fluminibus ". *Zoophyl.* **1** : 41, 168.

Gymnotus carapo, Gronovius (Gray), 1854 : 22.

The description in the *Museum Ichthyologicum* gave the length of the specimen described as 16·75 inches, and this is almost the exact length of the larger of these two specimens.

1853.11.12.172. *ca.* 180 mm.
1853.11.12.173. *ca.* 438 mm.

CYPRINIDAE

Leuciscus leuciscus (L.), 1758

Zoophyl. **1** : 106, 337.
Cyprinus salax Gronovius (Gray), 1854 : 186. Holotype.
1853.11.12.157. 217 mm.

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[1] There is a gap in the fin where I estimate by measurement that two rays are missing. I have added this number to the count made of 26.

Rutilus rutilus (L.), 1758

Zoophyl. **1** : 107, 338.
Cyprinus pigus Gronovius (Gray), 1854 : 183, " in fluminibus lacubusque Europaeis ". Holotype.

This use of the name *pigus* is apparently independent of the proposal of the same name by Lacépède (1803).

1853.11.12.154. 128 mm.

Scardinius erythropthalmus (L.), 1758

Mus. Ichth. **1** : 3, 9 (probably the variety " a " as there are only seven pelvic rays). *Zoophyl.* **1** : 107, 340, " Frequens in arudinatis Belgiis ".
Cyprinus rutilus (*non* L.) Gronovius (Gray), 1854 : 183.
1853.11.12.155. 126 mm.

Scardinius erythropthalmus (L.), 1758

Mus. Ichth. **1** : 2, 8. *Zoophyl.* **1** : 107, 399.
Cyprinus ery(thr)opthalmus, Gronovius (Gray), 1854 : 183.

The spelling of the specific name as *eryopthalmos* in the manuscript is repeated in several places showing that the change was intentional. The " thr " in parenthesis in the published work was inserted by Gray.

1853.11.12.158. 325 mm.

Phoxinus phoxinus (L.), 1758

Cyprinus phoxinus, Gronovius (Gray), 1854 : 185.
1853.11.12.177. 61 mm.

Abramis brama (L.), 1758

Mus. Ichth. **1** : 3, 14. *Zoophyl.* **1** : 110, 345.
Cyprinus brama, Gronovius (Gray), 1854 : 180.

There were three references quoted by Linnaeus under this name, namely, the *Fauna Svecica* (1746 : 318), Artedi (1738 ; **3** : 20), and Gronovius. Of the three only the Gronovius reference and that of Artedi gave fin ray counts in their descriptions ; thus this specimen is part of the type series.

1853.11.12.147. 256 mm.

Abramis vimba (L.), 1758

This specimen does not appear to have been included in the manuscript, and Günther (1868 : 303) considered that Gronovius had " confounded this species with others (*A. ballerus*) etc.), as is evident from his description and synonymy ". It is possible that this accounts for its omission.

1853.11.12.153. 205 mm.

Blicca bjoerkna (L.), 1758

Zoophyl. **1** : 110, 344.
Cyprinus latus Gronovius (Gray), 1854 : 180. Holotype.

This specific name was also proposed, apparently independently, by Gmelin (1789) although he probably derived it from Bloch (1782 : 65).

1853.11.12.146. 172 mm.

Cyprinus carpio L., 1758

Mus. Ichth. **1** : 5, 19. *Zoophyl.* **1** : 104, 330.
Cyprinus carpio, Gronovius (Gray), 1854 : 177.

Linnaeus based his name on descriptions by Artedi (1738, **3** : 25) and Gronovius, and on a specimen in his own collection. One of these skins (139) is normally scaled and is probably the specimen which Gronovius described, and thus part of the type series.

1853.11.12.139.	184 mm.
1853.11.12.141.	187 mm.

Cyprinus carpio L., 1758

Cyprinus specularis Gronovius (Gray), 1854 : 178, " in Danubiae paludosis locis ". Holotype.

1853.11.12.140.	214 mm.

Squalius cephalus (L.), 1758

Zoophyl. **1** : 106, 335, " in *Rheno* propre Lugdunum ".
Cyprinus salmoneus Gronovius (Gray), 1854 : 186. Holotype.

1853.11.12.138.	388 mm.

Squalius cephalus (L.), 1758

Cyprinus leuciscus (*non* L.) Gronovius (Gray), 1854 : 184.

1853.11.12.156.	150 mm.

Carassius carassius (L.), 1758

? *Mus Ichth.* **1** : 3, 11. ? *Zoophyl.* **1** : 110, 343.
Cyprinus carassius, Gronovius (Gray), 1854 : 179.

In view of the discrepancies between the earlier descriptions and the counts made on this specimen, I am doubtful if this was the specimen described by Gronovius.

1853.11.12.142.	195 mm.

Carassius auratus (L.), 1758

Zoophyl. **1** : 108, 342.
Cyprinus chinensis Gronovius (Gray), 1854 : 181, varieties 1, 6, 8, 12. Syntypes.

It is interesting to note that one specimen (150) was given to Gronovius by Job Baster who, in 1760, bred the goldfish at Zierikzee, and who later published an account of his observations in *Acta Harlem.*

1853.11.12.149	89 mm.
1853.11.12.150.	62 mm.
1853.11.12.151.	112 mm.
1853.11.12.152.	75 mm.

Barbus barbus (L.), 1758

Mus. Ichth. **2** : 3, 20. *Zoophyl.* **1** : 104, 331.
Cyprinus barbus, Gronovius (Gray), 1854 : 177.

The *Museum Ichthyologicum* was one of two works quoted by Linnaeus, the other being that of Artedi, who, however, gave no fin ray counts in his description ; Linnaeus also had a specimen in his own collection, for which he gave fin ray counts. This specimen is therefore part of the type material.

1853.11.12.144.	265 mm.

Tinca tinca (L.), 1758

Mus. Ichth. **1** : 4, 18. *Zoophyl.* **1** : 103, 328.
Cyprinus tinca, Gronovius (Gray), 1854 : 179.
1853.11.12.143. 132 mm.

COBITIDAE

Cobitis taenia L., 1758

Mus. Ichth. **1** : 2, 5. *Zoophyl.* **1** : 56, 200.

This specimen is not apparently included in the manuscript ; it is not likely that it was referred to as *C. barbatula* as Günther (1868 : 362) suggested.

1853.11.12.176. 79 mm.

Misgurnus fossilis (L.), 1758

Mus. Ichth. **1** : 2, 7. *Zoophyl.* **1** : 56, 201.
Cobitis fossilis, Gronovius (Gray), 1854 : 40.

This specimen was also described by J. F. Gronovius in *Acta Upsala*, 1748 : 79, tab. 3. Linnaeus based his name on three references to earlier authors, namely, to J. F. Gronovius, descriptions by Artedi (1738, **4** : 2) and to his own *Museum Adolphi Friderici* (1754 : 76). This appears to be the original Gronovius specimen and should therefore be regarded as having type status.

1853.11.12.121. 163 mm.

SILUROIDEA

DORADIDAE

Doras cataphractus (L.), 1758

Mus. Ichth. **1** : 28, 71, tab. 3, figs. 3 and 4. *Zoophyl.* **1** : 127, 390, " Habitat in Americes Meridionalis rivulis ".
Callichthys asper Gronovius (Gray), 1854 : 157. Holotype.

In listing this specimen in the *Catalogue of Fishes* Günther (1864) said, " this is not the typical specimen of the species, described and figured by Gronow ; he says that he saw it in Seba's collection ; and besides, the present specimen is considerably larger than the one figured ". Actually Gronovius did not say that he saw the specimen in Seba's collection, but " Comparavi ex Museo Sebae ", a remark that often occurs in that work. It is difficult to understand why Günther should have used the plate as a guide to the length of the specimen. It is more probable that the figure was reduced or enlarged during drawing and engraving so that it best fitted the space available in the plate. For example, the figure of *Callorhynchus* on plate five of the *Museum Ichthyologicum* measures ten and a half inches, while the text gives the length as nine and two-third inches. Also, several of van Nieuwland's drawings in the manuscript are badly foreshortened, solely to fit them on to the small quarto paper used. For these reasons I disagree with Günther's conclusion, and regard this specimen as the one which was described by Gronovius in 1754. This description was referred to by Linnaeus, who also mentioned the description in Catesby (1743 : 19, tab. 9), and this specimen is thus part of the type series.

1853.11.12.193. 93 mm.

SILURIDAE

Silurus glanis L., 1758

Mus. Ichth. **1** : 6, 25, tab. 6, fig. 1, " . . . in Sinu Harlemensi frequens . . . ". *Zoophyl.* **1** : 101, 323.
Silurus glanis, Gronovius (Gray), 1854 : 134.

The reference in the *Museum Ichthyologicum* was quoted by Linnaeus following two references to his own works (1751 : 61), (1756 : 34), and one to Artedi (1738, **4** : 82).

1853.11.12.168. 191 mm.

LORICARIIDAE

Loricaria ? cataphracta L., 1758 Plate 28, fig. 1.

Mus. Ichth. **1** : 26, 69. *Zoophyl.* **1** : 127, 392.
Plecostomus flagellaris Gronovius (Gray), 1854 : 158.

The measurements given in 1754 agree perfectly with those made on the specimen, except that part of the caudal filament is missing. The description in this work, was referred to by Linnaeus under *Loricaria cataphracta* and is the sole reference under his variety B ; it must be regarded as the type of this variety. Neither Regan (1904) nor Günther (1864) apparently recognized that this was one of the types of the species. I am doubtful if the specimen does belong to this species (of authors), but it is to be hoped that any future revision of these fishes will take this specimen and its resulting problem, into consideration.

1853.11.12.195. Upper surface 183 mm.
1853.11.12.196. Lower surface.

Head length	29	(16)	Dorsal fin, base . . .	16·5	(9)
Snout to orbit	19	(10)	,, ,, height . . .	4·8	(3)
,, ,, nostril . . .	16	(9)	Anal fin, base	9	(5)
,, ,, dorsal fin origin . .	54	(29)	Pelvic fin, base . . .	6	(4)
Diameter of orbit . . .	7·5	(4)	,, ,, length . . .	26	(14)
Vent to anal fin origin . .	15	(8)	Width of interorbital . .	7·5	(4)
Pectoral fin, base . . .	9	(5)	Pectoral fin, length . . .	33	(18)

Dorsal 1·7. Anal 6. Pelvic 1·5. Pectoral 1·6.

Snout broad and long ; orbit of moderate size, maximum diameter, measured to the extremity of the posterior notch, equals the interorbital width, which is about 3·5 in head length. Nape armed with three paired median spines. The underside of the head naked, with the barbels and sensory papillae around the mouth visible although completely dessicated. Four teeth on each side of the maxilla, and four in the left mandible, three in the right (probably one broken off short, as the others are spaced irregularly). Those in the mandible thin and long, curved slightly upwards, more than twice the length of the others, which are expanded sub-terminally and bear a weak cusp laterally.

Ventrally the scutes are irregular, small and numerous, but the outer series are more regular and posteriorly elongate ; there are ten scutes between their commencement and the base of the pelvic fins. There are three scutes between the vent and the origin of the anal fin, and 26 ventral scutes from anus to caudal fin. Thirty-two spined scutes, counting along the upper row from the head to the caudal fin, including one which is on the head, and thirty-three spinous scutes in the lower row from the pectoral fin base to the caudal fin. The two rows of spines converge fourteen scutes from the tail.

APODES

ANGUILLIDAE

Anguilla anguilla (L.), 1758

Mus. Ichth. **1** : 16, 45. *Zoophyl.* **1** : 40, 166.
Muraena anguilla, Gronovius (Gray), 1854 : 18.
1853.11.12.169. *ca.* 500 mm.

MURAENESOCIDAE

Muraenesox ferox (Costa), 1850[1]

Muraena myrus (*non* Brünnich) Gronovius (Gray), 1854 : 20, " . . . in Mari Mediterraneo . . . ". Holotype.
1854.11.12.171. 447 mm.

CONGRIDAE

Conger conger (L.), 1758

Muraena conger, Gronovius (Gray), 1854 : 19, " . . . in Mari Mediterraneo ".
1853.11.12.170. 392 mm.

SYNENTOGNATHI

BELONIDAE

Belone belone (L.), 1758

Mus. Ichth. **1** : 10, 30. *Zoophyl.* **1** : 117, 362.
Macrognathus scolopax Gronovius (Gray), 1854 : 147. Holotype.

Linnaeus based his name *Esox belone* on three earlier descriptions, in Artedi 1738, **5** : 27), Linnaeus (1746 : 305) and the *Museum Ichthyologicum.* This specimen is therefore part of the type series.

Although Gronovius (1854) indicated plainly enough that his *Macrognathus scolopax* was synonymous with *Esox belone* of Linnaeus, by listing the latter as a " synonym " (in this he was followed by Günther (1866 : 254)), Regan listed *Macrognathus* Gronovius as a synonym of *Macrorhamphosus.* Jordan (1919 : 259) in copying Regan, added further to the confusion by listing " *Macrognathus* Gronow 147 ; logotype *Centriscus scolopax* L. Name preoccupied ; a synonym of *Macrorhamphosus* Lac." It is unfortunate that neither Regan nor Jordan had referred to the description in Gronovius (1854), had they done so this confusion could never have occurred.

1853.11.12.147. *ca.* 730 mm.

HEMIRHAMPHIDAE

Hemirhamphus brasiliensis (L.), 1758

Zoophyl. **1** : 118, 363.
Macrognathus brevirostris Gronovius (Gray), 1854 : 148. Holotype.

Neither Gray (1854) nor Günther (1860 : 270) recognized this specimen as the Gronovius type.

1853.11.12.115. 180 mm.

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[1] This species is probably synonymous with *M. savana* (Bancroft), 1831. Regan (1915) claimed the two to be distinct, but the specimens he identified as *Muraenesox ferox*, are certainly not that species and appear to be more closely related to the American *M. coniceps* than to any West African-Mediterranean species.

EXOCOETIDAE

Exocoetus ? volitans L., 1758

Zoophyl. **1** : 116, 358. " Reperitur in Mari Hispanico ".
Exocoetus evolans L. Gronovius (Gray), 1854 : 144.

Linnaeus (1766 : 521) based the name *Exocoetus evolans* primarily on the description by Gronovius in the *Zoophylacium*, therefore this specimen, which corresponds very well with the description, may be regarded as the holotype of that species. Brunn (1935 : 22) examined this specimen and wrote of it, " Examination . . . could only determine naturally, that it was really an *Exocoetus*, but whether *E. volitans* or *E. obtusirostris* could not be quite settled with certainty, as the gill rakers could not be examined. The transverse scales were, however, fairly well preserved and showed 6½ rows, a result that Mr. J. R. Norman kindly confirmed. In all probability therefore *E. evolans* is synonymous with *E. volitans*." I can add nothing to this statement except, perhaps, to confirm the count of 6½ scales, and I consider that Brunn was justified in indicating that the two species were synonymous.

1853.11.12.181. 113 mm.

SOLENICHTHYES

AULOSTOMATIDAE

Aulostomus maculatus Valenciennes, 1842

Zoophyl. **1** : 119, 366.
Solenostomus chinensis non L. Gronovius (Gray), 1854 : 147.

For a detailed discussion of the status of this specimen, see Wheeler (1955*b*).

1853.11.12.102. 304 mm.

SYNGNATHIDAE

(The portion of the manuscript dealing with this genus is missing, if indeed it was even completed.)

Entelurus aequoreus (L.), 1758

Mus. Ichth. **1** : 1, 2. *Zoophyl.* **1** : 43, 171.

This specimen is labelled in Gronovius's hand *Syngnathus ophidion*, and it is one of the types of that species, for Linnaeus referred to the description in the *Museum Ichthyologicum* under that name. This misunderstanding was probably caused by Gronovius erroneously stating that there was no caudal fin (it is indeed difficult to see). Fortunately no nomenclatorial change need ensue from this composite type series, for the specimen described in Linnaeus (1746 : 334) and also referred to under this specific name in Linnaeus (1758) appears to be the species accepted as *S. ophidion*.

1853.11.12.185. 500 mm.

Syngnathus acus L., 1758

Mus. Ichth. **1** : 1, 3. *Zoophyl.* **1** : 43, 172.

Gronovius's (1754) description was given as the second reference by Linnaeus ;

this specimen is therefore part of the type series. The other references were to Artedi (1738), and to Linnaeus (1746 : 335).

1853.11.12.184. 378 mm.

ANACANTHINI

MERLUCCIIDAE

Merluccius merluccius (L.), 1758

Zoophyl. **1** : 97, 315.
Merlucius lanatus Gronovius (Gray), 1854 : 130. Holotype.

The use of *Merlucius* in the manuscript considerably antedates its first published usage by Rafinesque in 1810.

1853.11.12.113. 283 mm.

GADIDAE

Gadus callarias L., 1758

Mus. Ichth. **1** : 21, 58. *Zoophyl.* **1** : 99, 319.
Gadus callarias, Gronovius (Gray), 1854 : 131.

Linnaeus based the specific name *callarias* on five references, namely Linnaeus (1746 : 293), Artedi (1738, **3** : 63), Gronovius (1754), Linnaeus (1745 : 87) and (1751 : 220). This specimen is therefore part of the type series.

1853.11.12.162. 195 mm.

Gadus luscus L., 1758

Mus. Ichth. **1** : 21, 60. *Zoophyl.* **1** : 99, 320.
Gadus colias (*non* L.) Gronovius (Gray), 1854 : 131. Holotype.
1853.11.12.163. 161 mm.

Gadus aeglefinus L., 1758

Mus. Ichth. **1** : 12, 59. *Zoophyl.* **1** : 99, 321.
Gadus aeglefinus, Gronovius (Gray), 1854 : 131.

The 1754 description is the third of five quoted by Linnaeus ; this specimen may therefore be regarded as a syntype.

1853.11.12.164. 255 mm.

Gadus merlangus L., 1758

Mus. Ichth. **1** : 20, 55. *Zoophyl.* **1** : 91, 316.
Gadus merlangus, Gronovius (Gray), 1854 : 132.

The description in Gronovius (1754) is the third of three references given by Linnaeus ; these specimens may thus be considered syntypes of the species.

1853.11.12.165. 177 mm.
1853.11.12.166. 148 mm.

Gadus virens L., 1758

Mus. Ichth. **1** : 20, 55. *Zoophyl.* **1** : 98, 317.
Gadus carbonarius L. Gronovius (Gray), 1854 : 132.

This specimen was also described by J. F. Gronovius in *Acta Upsaliensis* (1748), the length of the present specimen agrees very well with that given in that description, and I consider that it can be regarded as the original specimen. Linnaeus (under this name), referred to only two earlier descriptions, namely to his own *Fauna Svecica* (1746 : 296) and to J. F. Gronovius (1748). This specimen may therefore be regarded as part of the Linnaean type series.

1853.11.12.167.	284 mm.

Lota lota (L.), 1758

Mus. Ichth. **1** : 21, 61. *Zoophyl.* **1** : 97, 313.
Enchelyopus lota, Gronovius (Gray), 1854 : 101.

1853.11.12.119.	159 mm.

Onos mustelus (L.), 1758

Mus. Ichth. **1** : 21, 62. *Zoophyl.* **1** : 97, 314.
Enchelyopus mustela, Gronovius (Gray), 1854 : 101.

A description of this species by the elder Gronovius (1746) was referred to by Linnaeus, but as the specimen described was nine inches long I do not regard it as the same as the present specimen.

1853.11.12.118.	109 mm.

PERCOIDEA

SERRANIDAE

Serranus cabrilla (L.), 1758

Zoophyl. **1** : 89, 295. " . . . Mare Mediterraneum insulam Melitam ".
Perca mormyrus (*non* L.) Gronovius (Gray), 1854 : 109.

1853.11.12.56.	121 mm.

Petrometopon cruentatus (Lacépède), 1803

Perca punctata (*non* L.) Gronovius (Gray), 1854 : 109.

This is probably one of the specimens collected by Garden in Carolina, for the manuscript reads, " . . . in Mari Americano ad Carolinam ". The number that Garden usually wrote on the side of the fish is missing in this case.

Not registered.	*ca.* 108 mm.

Centropristes striatus (L.), 1758

Perca atraria L. Gronovius (Gray), 1854 : 111.

This was one of Alexander Garden's specimens, it bears his number 7 on its side. Garden also sent to Linnaeus the holotype of *Perca atraria*, which is preserved in the collection of the Linnean Society (Günther, 1899).

1853.11.12.107.	230 mm.

Morone labrax (L.), 1766

Gronovius, J. F., *Acta Upsala.* 1751 : 39, tab. 4. *Mus. Ichth.* **1** : 41, 95. *Zoophyl.* **1** : 91, 300.
Perca labrax, Gronovius (Gray), 1854 : 115.

Linnaeus based his name *Perca labrax* on the descriptions by Gronovius (1751) and Artedi (1738, **4** : 41). This specimen is identical in length with that described and it is therefore probably part of the type series.

1853.11.12.1.	169 mm.

PERCIDAE

Acerina cernua (L.), 1758

Mus. Ichth. **1** : 41, 94. *Zoophyl.* **1** : 86, 288.
Perca cernua, Gronovius (Gray), 1854 : 112.

Gronovius (1754) was one of the three descriptions to which Linnaeus referred; this specimen is therefore one of the original types.

1853.11.12.5.	101 mm.

Acerina schraetser (L.), 1758

Zoophyl. **1** : 86, 289. " . . . in Danubio ".
Perca danubiensis Gronovius (Gray), 1854 : 112. Holotype.

Although Gronovius identified this specimen with *Perca schraetser* Linnaeus by listing the latter in the " synonymy ", he also gave it the new name of *danubiensis*.

1853.11.12.41.	118 mm.

Perca fluviatilis L., 1758

Mus. Ichth. **1** : 42, 96. *Zoophyl.* **1** : 91, 301.
Perca vulgaris Gronovius (Gray), 1854 : 114.

Gronovius (1754) was listed by Linnaeus after references to Artedi (1738, **3** : 74) and his own *Fauna Svecica* (1746 : 285), this specimen is therefore part of the type series of Linnaeus's species.

1853.11.12.3.	130 mm.

Perca fluviatilis L., 1758

? *Zoophyl.* **1** : 92, 302.
Perca helvetica Gronovius (Gray), 1854 : 113. Holotype.

1853.11.12.2.	107 mm.

Aspro zingel (L.), 1766

Zoophyl. **1** : 92, 303, " Habitat in Danubio . . . ".
Perca asper (*non* L.) Gronovius (Gray), 1854 : 115.

Linnaeus (1766) based his name *Perca zingel* on three earlier references, namely, Gronovius (1763), Schaeffer (1761 : 58, tab. 3, fig. 1) and Kramer (1756 : 386). The present specimen should therefore be considered as one of the types. It should be noted that this specimen was given to Gronovius by Kramer.

1853.11.12.81.	177 mm.

POMATOMIDAE

Pomatomus saltatrix (L.), 1766

Chromis epicurorum Gronovius (Gray), 1854 : 149. Holotype. " Habitat in mari Carolinam alluente. Piscis sapidissimus et palato. Epicurorum gratissimus . . . Anglis Carolinam inhabitantibus audit *Fat back* et *Ship Jack*."

This specimen bears the Garden collection number 11.

1853.11.12.45.	366 mm.

Rachycentridae

Rachycentron canadus (L.), 1766

Thynnus canadensis, Gronovius (Gray), 1854 : 122. " . . . in Mari Carolinam Meridionalem alluente."

Gronovius had written on the back of the skin the name *Scomber canadensis*, but the drawing of this specimen in the manuscript is labelled *Thynnus canadensis*. This is another of Garden's Carolina specimens.

1853.11.12.161. 500 mm.

Carangidae

Chorinemus sancti-petri C. & V., 1831

Zoophyl. **1** : 93, 305.
Thynnus moluccensis Gronovius (Gray), 1854 : 121. Holotype.

Gronovius (1763) confused this species with *Scomber thynnus* Linnaeus, and as a result Linnaeus (1766) included the description in the *Zoophylacium* in his synonymy of that species.

1853.11.12.29. 142 mm.

Naucrates ductor (L.), 1758

Zoophyl. **1** : 94, 309, " Inhabitat Mare Mediterraneum . . . ".
Thynnus pompilus Gronovius (Gray) 1854 : 123. Holotype.

Gray identified this specimen as *Sarda immaculata* of the manuscript, but this is obviously incorrect. *Sarda immaculata* is probably a synonym of *Scomber pelagicus* (= *Coryphaena hippurus* L.).

1853.11.12.41. 111 mm.

Caranx hippos (L.), 1766

Mus. Ichth. **1** : 34, 82. *Zoophyl.* **1** : 94, 307.
Trachurus cordyla Gronovius (Gray), 1854 : 124. Holotype.
1853.11.12.93. 59 mm.

Caranx chrysos (Mitchill), 1815

Trachurus squamosus Gronovius (Gray), 1854 : 125. Holotype.

This specimen bears Garden's number of 17, it formed part of his Carolina collection.

1853.11.12.94. 270 mm.

Trachurus trachurus (L.), 1758

Mus. Ichth. **1** : 34, 82. *Zoophyl.* **1** : 94, 308.
Trachurus europaeus Gronovius (Gray), 1854 : 125. Holotype.
1853.11.12.95. 189 mm.

Chloroscombrus chrysurus (L.), 1766

Scomber latus Gronovius (Gray), 1854 : 127. Holotype.

This specimen was also part of Garden's Carolina collection.

1853.11.12.96. 227 mm.

LUTIANIDAE

Lutjanus kasmira (Forskål), 1775

Perca lineata Gronovius (Gray), 1854 : 110. Holotype.

The longitudinal stripes on the body of this specimen, now faded to a light greeny-blue, are five in number, placing it in the form *quinquelineatus*.

1853.11.12.58. 174 mm.

LEIOGNATHIDAE

Leiognathus equulus (Forskål), 1775

Although named (but not in Gronovius's hand), as *Scomber indicus* and bearing the number 50 which relates to *Scomber* in the manuscript, there is no description which agrees with this specimen.

1853.11.12.97. 138 mm.

SCIAENIDAE

Cynoscion regalis (Bloch (Schneider)), 1801

Cestreus carolinensis Gronovius (Gray), 1854 : 49. Holotype.

This specimen is part of Garden's collection, and is referred to in the manuscript as the " Sea Trout ", a vernacular name which Jordan & Everman (1898 : 1407) also give for this species.

1853.11.12.42. 344 mm.

Orthopristis chrysopterus (L.), 1766

Although this specimen was part of Alexander Garden's collection it is not mentioned in the manuscript. It is of interest to note that Linnaeus described this species from a specimen from the same source.

1853.11.12.43. 220 mm.

Umbrina cirrosa (L.), 1758

Mus. Ichth. **1** : 39, 92. *Zoophyl.* **1** : 59, 212.
Sciaena cestreus Gronovius (Gray), 1854 : 52. Holotype.

Linnaeus based his name *Sciaena cirrosa* on two earlier references namely, to Artedi (1738, **4** : 38), and to Gronovius's description in the *Museum Ichthyologicum* (although this reference was followed by a question mark). Two points in the Gronovius description require clarification. In 1754 the locality for the species was given as the rivers of Surinam (" Locus natalis Surinamae fluvius est "), but in the *Zoophylacium* it was altered to " Habitat in Mari mediterraneo ", while the manuscript reads " Habitat in Mari Americano, quandoque et Mediterraneo ". I have already commented (Wheeler, 1955*b*) on the unreliability of some of Gronovius's locality ascriptions, and I would have considered it legitimate to ignore the locality of Surinam, if it were not for a discrepancy in the dorsal fin count for this specimen and the number given in the *Museum Ichthyologicum.* Here it is stated that there are thirty-six rays in the dorsal fin, of which the first ten are " simplicia et aculeata ", but this specimen has a dorsal fin comprised of ten spines and twenty-four soft rays. This agrees with the number given in the manuscript, and for this reason, I conclude that this specimen was not the same as the one described in the *Museum Ichthyologicum*, and as such it is not one of the types of *Sciana cirrosa*. It is probable that this skin was an addition to the collection after the publication of the *Zoophylacium*, which would also explain its excellent condition.

1853.11.12.74. 367 mm.

Menticirrhus americanus (L.), 1758

Sciaena alburnus (*non* L.) Gronovius (Gray), 1854 : 51.

There is an excellent figure in the manuscript of this specimen, which bears Garden's collection number 2.

1853.11.12.75. 228 mm.

MULLIDAE

Mullus barbatus L., 1758

Mus. Ichth. **1** : 43, 99. *Zoophyl.* **1** : 85, 286.
Mullus barbatus, Gronovius (Gray), 1854 : 108.

Linnaeus based his name on two references, and on a specimen in his own collection. The two references were to Artedi (1738, **4** : 43) and to Gronovius's description in the *Museum Ichthyologicum*. This specimen is therefore probably one of the original type series.

1853.11.12.14. 205 mm.

SPARIDAE

Pachymetopon blochii (Val.), 1830

This specimen is not included in the manuscript, although the description of *Cynaedus striatus* fits it fairly well. There are, however, several discrepancies, notably in the locality " Oceano Indico ", although this species appears to occur only off the South African coast ; and in the length of the specimen, nine and a half inches, against the published " longitudo semipedalis ".

1853.11.12.85. 200 mm.

Stentomus chrysops (L.), 1766

Cynaedus brama Gronovius (Gray), 1854 : 56. Holotype.

Günther (1859 : 409) failed to recognize this specimen as the type of *Cynaedus brama* Gronovius, and made it one of the four syntypes of his own *Sargus ambassis*, and synonymized the Gronovius name with *Sargus unimaculatus* (Bloch). Jordan & Everman (1898 : 1360) copied Günther in this synonymy but relegated his *Sargus ambassis* to the synonymy of *Stenotomus chrysops*.

This specimen bears the Garden collection number 13.

1853.11.12.76. 163 mm.

Archosargus probatocephalus (Walbaum), 1792

Perca leonina Gronovius (Gray), 1854 : 113. Holotype.

Gronovius under this name, refers to the *Zoophylacium* (**1** : 60, 213) which, however, is a description of the South African species *Chrysoblephus laticeps* (a specimen of which is still preserved in the collection). The present specimen, although not now in good condition, is well illustrated in the manuscript, and this is labelled in Gronovius's hand, thus confirming the identification.

1853.11.12.34. 300 mm.

Boops boops (L.), 1758

Zoophyl. **1** : 63, 218.
Cynaedus gracilis Gronovius (Gray), 1854 : 57. Holotype.
1853.11.12.22. 202 mm.

Boops salpa (L.), 1758

Zoophyl. **1** : 62, 216
Cynaedus onias Gronovius (Gray), 1854 : 55. Holotype.
1853.11.12.83. 125 mm.

Spondylisoma cantharus (Gmelin), 1788

Apparently this specimen was not included in the manuscript.

1853.11.12.84. 98 mm.

Lithognathus lithognathus (Cuv.), 1829

On the back of this skin there is a label in Gronovius's hand, but unfortunately only the generic name *Cynaedus* is clear although the last three letters of the specific name appear to be . . . *ius*. There is no such termination to any of the names in this genus in the manuscript. The sheet on which the specimen is mounted also bears a label *Cynaedus cyprinoides*, but again this name is not recorded in the manuscript.

1853.11.12.23. 204 mm.

Argyrozona argyrozona (Val.), 1830

Zoophyl. **1** : 60, 214.
Cynaedus lupus Gronovius (Gray), 1854 : 54. Holotype.
1853.11.12.20. 368 mm.

Chrysoblephus laticeps (Cuv.), 1830

Zoophyl. **1** : 60, 213.
Cynaedus torvus Gronovius (Gray), 1854 : 54. Holotype.

Günther confused this skin with *Perca leonina* of Gronovius (see p. 222) although in both cases the fishes themselves are labelled in Gronovius's hand, and there are good figures in the manuscript.

It is of interest to note that Smith (1949 : 272) gives as the vernacular name of this species " Roman or Red Roman ", and Gronovius (1763) added to his description " Inhabitat Mare Promontorium Bonae Spei alluens, ubi ab incolis *Rooman* a rubro colore vocatur ".

1853.11.12.21. 254 mm.

GIRELLIDAE

Dipterodon capensis Cuv. & Val., 1831

Zoophyl. **1** : 66, 226.
Coracinus aper Gronovius (Gray), 1854 : 57. Holotype.
1853.11.12.215. 200 mm.

SCATOPHAGIDAE

Scatophagus argus (L.), 1766 Plate 29, fig. 1.

Sargus maculatus Gronovius (Gray), 1854 : 65. Holotype.

This specimen was given to Gronovius by Pieter Boddaert, who in 1770 published a very detailed description of the species, in " . . . de *Chaetodonte Argo* . . . ".

The specimen that he described he had purchased from the collection of Johannes Albert Schlosser, an Amsterdam physician, and the owner of a large collection of natural history specimens, who died during 1769. The measurements given by Boddaert, " Altitudinem a Ventre ad Dorsam trium pollicum, totodemque linearum inveni, et longitudinem trium pollicum, cum quinque lineis ", fit the present specimen well, and it seems probable that this is the same specimen that was purchased at the sale of Schlosser's collections.

1853.11.12.82. 83 mm.

CHAETODONTIDAE

Heteropyge sexstriatus Cuv. & Val., 1831

Chaetodon resimus Gronovius (Gray), 1854 : 71. Holotype.

There is a fine drawing of this specimen in the manuscript, labelled *C. resimus* in Gronovius's hand, which proves that this specimen is the one described under that name, and that Günther was in error in claiming this as the type specimen of *C. vorticosus* (a synonym of *Holacanthus annularis* Bloch).

1853.11.12.61. 115 mm.

Holacanthus ciliaris (L.), 1758

? *Zoophyl.* **1** : 68, 231.
Chaetodon aculeatus Gronovius (Gray), 1854 : 72. Syntype.
1853.11.12.64. 248 mm.

Holacanthus ciliaris (L.), 1758

Mus. Ichth. **2** : 36, 192. *Zoophyl.* **1** : 69, 232.
Chaetodon aculeatus Gronovius (Gray), 1854 : 73. Syntype.

The description of the colour pattern in the *Museum Ichthyologicum* agrees exactly with the markings on the present specimen. Linnaeus, in naming this species, referred to the description in that work, before the other references he gave (Linnaeus, 1754 : 62 ; 1757 : 273). This is therefore part of the original type series, although Fraser-Brunner (1933) who examined the specimen, did not note it as such.

1853.11.12.65. 85 mm.

Pomacanthus annularis (Bloch), 1787

Chaetodon vorticosus Gronovius (Gray), 1854 : 74. Holotype.
1853.11.12.66. 124 mm.

Chaetodontoplus mesoleucus (Bloch), 1787

Chaetodon atratus Gronovius (Gray), 1854 : 72. Holotype.

Fraser-Brunner (1933) ascribed to this specimen the locality of Singapore, although Gronovius merely stated " Habitat in India ".

1853.11.12.62. 127 mm.

Chelmon rostratus (L.), 1758

Mus. Ichth. **1** : 48, 109. *Zoophyl.* **1** : 69, 233.
Chaetodon rostratus, Gronovius (Gray), 1854 : 73.

The detailed measurements given (1754) of the specimen described, correspond very closely with the present specimen if allowance is made for the damage to the snout and caudal fin.

The description in the *Museum Ichthyologicum* was one of the two references that Linnaeus gave for his species *Chaetodon rostratus*. The other was to a description in his *Museum Adolphi Friderici* (Linnaeus, 1754 : 61). The present specimen is therefore part of the type series.

1853.11.12.63.	115 mm.

Chaetodon striatus L., 1758

Mus. Ichth. **1** : 49, 110 ; **2** : 38, 110. *Zoophyl.* **1** : 70, 235.
Chaetodon striatus, Gronovius (Gray), 1854 : 68.

Linnaeus based his name *striatus* on four earlier descriptions, namely those of Linnaeus (1754 : 62 ; 1749 : 313), Artedi (1738, **3** : 95) and Gronovius (1754 : 49). This specimen is therefore part of the original type material.

1853.11.12.67.	54 mm.

Chaetodon capistratus L., 1758

? *Mus. Ichth.* **2** : 37, 195. ? *Zoophyl.* **1** : 70, 237.
Chaetodon capistratus, Gronovius (Gray), 1854 : 67.

There is a table of measurements given in the *Museum Ichthyologicum* in which the total length is given as 2·3 inches, the present specimen, however, measures three inches. It is therefore doubtful if it is the original specimen described by Gronovius, and it would not be surprising if this common Atlantic fish had been replaced in the collection.

It is of interest to note in this context that Linnaeus based his name on three references ; Linnaeus (1754 : 63 ; 1749 : 314) and Gronovius's description in the *Museum Ichthyologicum*, so that if this specimen is the original of the Gronovius description it must be considered part of the type series. Meek & Hildebrand (1928 : 787) were thus in error when they stated that this species was " based on a specimen in Mus. Adolphi Frederici (*sic*) " (Linnaeus, 1754). Although their contention that this name should be restricted to the Atlantic species is supported by the Gronovius specimen (the locality for which was " Mare Atlanticum sub Zone torrida "), this was in direct contradiction with Linnaeus's " Habitat in Indiis ".

1853.11.12.68.	66 mm.

Chaetodon punctato-fasciatus Cuv. & Val., 1831

Chaetodon punctato-lineatus Gronovius (Gray), 1854 : 70. Holotype.

1853.11.12.70.	56 mm.

Chaetodon octofasciatus Bloch, 1787

Chaetodon octolineatus Gronovius (Gray), 1854 : 69. Holotype.

1853.11.12.71.	67 mm.

Coradion chrysozonus (Cuv. & Val.), 1831

Chaetodon guttatus Gronovius (Gray), 1854 : 71. Holotype.

There is a figure of this specimen in the manuscript, signed by van Nieuwland " ad viv del 1774 ". A small paper label with the number 16 printed on it is pasted on the back of the specimen.

1853.11.12.72.	121 mm.

Chaetodon sp.

Chaetodon unifasciatus Gronovius (Gray), 1854 : 69. Holotype.

This specimen is very poorly preserved.

1853.11.12.69. 35 mm.

CICHLIDAE

Crenicichla saxatilis (L.), 1758 Plate 30, fig. 2.

Mus. Ichth. **2** : 28, 185, tab. 6, fig. 3. *Zoophyl.* **1** : 67, 229, tab. 6, fig. 3.
Scarus pavoninus Gronovius (Gray), 1854 : 63. Holotype.

Linnaeus based his species *Sparus saxatilis* on two earlier descriptions, one in his own *Museum Adolphi Friderici* (1754 : 65) and the other in the *Museum Ichthyologicum* Lönnberg (1896) does not list the former specimen as being amongst those still preserved in the University of Upsala, and presumably it is no longer in existence. This specimen is therefore probably the only remaining part of the type material. It was not mentioned by Regan (1905),

1853.11.12.24. 107 mm.

Length of head	36	(34)	Width of premaxillary	3	(3)
Snout to eye	10·5	(10)	Body depth at dorsal origin	26	(25)
,, ,, pectoral origin	37	(35)	Length of dorsal fin base	67	(63)
,, ,, dorsal origin	35	(33)	,, ,, anal fin base	15	(14)
,, ,, anal origin	81	(76)	Longest pectoral ray	20	(19)
Diameter of orbit	8	(8)	,, pelvic ray	19	(18)
Postorbital length	18	(17)	Depth of caudal peduncle	12·5	(12)

Dorsal XVII.14. Anal III.9. Pelvic I.5. Pectoral 14.

Head with pointed snout, lower jaw protruding ; gape equal to snout, two and a half times in head, eye moderate, in anterior half of head. Dorsal fin origin above the upper edge of the operculum and extending from thence to the caudal peduncle, moderately low, spines (except for the first three) all equal in height, soft rays a little longer, fourth from the last the longest. The hind margin of the fin is angular. Caudal fin broadly rounded, middle rays slightly produced. Anal fin short, its height as great as the dorsal, and also with a pointed posterior margin, it ends slightly anterior to the last rays of the dorsal fin. Pelvic fin strong, mid rays longest, pectoral fin weak, longest rays about equal to pelvic rays.

There are twenty-four, and ten scales in the lateral lines. At the end of the spinous dorsal there are 3½ rows above the anterior line, and 9½ below ; 4 above and below the posterior line, counted on the caudal peduncle.

Colour : In general, this skin has faded to a golden-brown, lighter below than above, but a few marks can be distinguished on it. There is a dark ocellus, rather larger than the orbit, above and slightly behind the pectoral fin base. Also there is an indistinct mark behind the orbit, and a number of dark blotches scattered over the sides and back but too indistinct to be clearly described. The caudal peduncle has a dark mark across the base of the fin rays, and on the origin of the upper caudal rays there is another smaller ocellus. The membrane of the caudal fin appears to have alternate light and dark markings. The edge of the membrane of both dorsal and anal fins is tinged dark, as are the tips of the middle rays of the caudal fin.

CHILODACTYLIDAE

Chilodactylus fasciatus Lacépède, 1803

Zoophyl. **1** : 64, 221, tab. 10, fig. 1.
Trichopterus indicus Gronovius (Gray), 1854 : 162. Holotype.
1853.11.12.25. 181 mm.

POMACENTRIDAE

Premnas biaculeatus (Bloch), 1790

Sargus ensifer Gronovius (Gray), 1854 : 66. Holotype.
1853.11.12.32. 103 mm.

Amphiprion polymnus (L.), 1758

Mus. Ichth. **1** : 38, 91. *Zoophyl.* **1** : 66, 227.
Coracinus vittatus Gronovius (Gray) 1854 : 57. Holotype.
1853.11.12.33. 62 mm.

Dascyllus trimaculatus (Rüppell), 1828

Sparus nigricans Gronovius (Gray), 1854 : 61. Holotype.

There is small slip of paper with a printed number 3, stuck on the back of this skin. A figure of the specimen is labelled *Sparus* ******, in the manuscript, which name was evidently altered later in the text.

1853.11.12.103. 95 mm.

Pomacentrus fuscus Cuv. & Val., 1830

This specimen is not included in the manuscript, although Günther (1862 : 31) regarded it as part of Gronovius' *Sparus nigricans*. I am unable to uphold this view as the figure and the description of that species agree so well the specimen listed above, and but poorly with this skin.

1853.11.12.104. 72 mm.

Abudefduf saxatilis vaigiensis (Quoy & Gaimard), 1824

Mus. Ichth. **1** : 37, 89. *Zoophyl.* **1** : 64, 222.
Sparus fasciatus Gronovius (Gray), 1854 : 60. Holotype.

This specimen shows no signs of the colour pattern, usually so distinct in this species, but an illustration of the skin in the manuscript shows the transverse bands distinctly. The fifth band is confined to the caudal peduncle, which, according to de Beaufort (1940 : 408) is typical of this subspecies.

Linnaeus based his name *Chaetodon saxatilis* on three earlier descriptions ; two in his own works (Linnaeus, 1754 : 64 ; 1749 : 312), and the third in the *Museum Ichthyologicum*. Lönnberg (1896) has shown that the specimen described in the first of these works is actually the American subspecies, which Cuvier & Valenciennes, Günther and authors called *Glyphisodon saxatilis*. De Beaufort (1940) and others have accepted Lönnberg's determination without reservation, and it has never been pointed out that Linnaeus based his name on more than one reference, and consequently on more than one specimen. Gronovius gave no locality for his fish in the original description, but in the manuscript it is given as " Habitat in Mari Indico ", and the identification of the illustration leaves no doubt that the specimen came from the Indo-Pacific. Thus it appears that the Linnaean species is composite, and the name must therefore be restricted in the sense used by the first reviser. This appears to have been Bloch (ed. Schneider) (1801 : 833, tab. 1), where the species is said to come from " in aquis dulcibus Surinami ". and the plate given by Bloch (1794) almost certainly represents an American specimen. This fortunately means that no change in the accepted name is called for.

1853.11.12.105. 95 mm.

Abudefduf coelestinus (Cuv. & Val.), 1830

This specimen does not appear to have been described in the manuscript, although there is an unnamed illustration of it there.

1853.11.12.106. 81 mm.

LABRIDAE

Sparisoma viride (Bonnaterre), 1788

Callyodon psittacus (*non* L.) Gronovius (Gray), 1854 : 84.

This is another of Garden's specimens, it bears his number 13 on its side.

1853.11.12.36. 336 mm.

Platyglossus bivittatus (Bloch), 1792

Labrus multicostatus Gronovius (Gray), 1854 : 81. Holotype.

This specimen bears Garden's collection number 2 on its side. The same collector also sent specimens of this species to Linnaeus who, however, confused it with his own *Labrus radiatus*, and he listed it as *Sparus radiatus* in 1766.

1853.11.12.38. 165 mm.

Thalassoma lunare (L.), 1758

Mus. Ichth. **2** : 26, 180, tab. 6, fig. 2. *Zoophyl.* **1** : 71, 242, tab. 6, fig. 2.
Labrus lunaris, Gronovius (Gray), 1854 : 82.

Linnaeus based the name *Labrus lunaris* on a specimen in his own collection, and on the description in the *Museum Ichthyologicum*. This specimen is therefore part of the type series.

1853.11.12.39. 145 mm.

Callyodon bicolor (Rüppell), 1828

? *Zoophyl.* **1** : 72, 245 (probably from authors only).
Callyodon scriptus Gronovius (Gray), 1854 : 85. Holotype.
1853.11.12.37. 337 mm.

Callyodon mutabilis Gronovius (Gray), 1854.

Callyodon mutabilis Gronovius (Gray), 1854 : 86. Holotype.

There is an ink and wash figure of this specimen in the manuscript, which is labelled *C.* *******, as also is the skin, although the name was altered in the manuscript to that published by Gray.

This species is one of the few of Gronovius's names which were valid when published in 1854, although as Günther (1862 : 231) failed to list the specimen, the fact that the type exists has been overlooked.

1853.11.12.87. 156 mm.

Head length	47 (30)	Length of dorsal fin base	87 (56)
Snout length	19 (12)	Depth of caudal peduncle	21 (14)
Orbit diameter	10 (6)	,, ,, body	60 (38)
Depth of cheek	12 (8)	Length of anal fin base	40 (26)
Snout to dorsal origin	50 (32)	Length of the pectoral fin	34 (22)
,, ,, pectoral base	47 (30)		

Dorsal IX.10. Anal III.9. Pectoral I.11.

Head 3·3 in body, eye about the middle of the head. There are two rows of scales on the cheek, with five scales in the upper row and six in the lower; two rows also on the lower preopercular limb. The origin of the dorsal and the pelvic fins is slightly in advance of the posterior edge of the operculum, which is itself slightly anterior to the pectoral fin base. The base of this fin is oblique, the upper ray longest, two and a half times longer than the lowest ray. Dorsal fin low, both spines and rays less than the snout length, it terminates just before the caudal peduncle. The anal fin is almost as high as the dorsal but much shorter, its origin beneath the second dorsal ray, it extends a little past the end of the dorsal base. Caudal fin fairly short, its posterior edge rather square. There are 18 + 7 scales in the lateral line, with two rows above and six below. Both the upper and lower jaws have two posterior caniniform teeth, those in the lower jaw being closer together and rather larger than the upper.

Colour: There is a general greenish tinge on all the scales, except those of the abdomen and head. The dorsal surface of the head is darker than elsewhere, with green lines at the base of the lips; the line on the lower jaw runs upwards to meet the upper and together they run back to the lower front margin of the eye. This line appears to continue behind the orbit to a level with the pupil, and is then produced into a short backwardly directed line. Another at the back upper edge of the orbit runs over the top of the eye and then across the interorbital. A few green spots on the front lower limb of the operculum. The lips are edged with green. There are two distinct green stripes on the dorsal fin, the lower just above the scaly sheath and extending only as far as the third ray. The other commences at about the last dorsal spine. The caudal fin has its outer rays tinged with green along their whole length, while the anterior half of the membrane is distinctly green. The anal fin has two distinct green lines, one rising about half way up the first spine and running along the whole fin, to end almost at the tip of the last ray. The other streak runs along the scaly sheath and ends as a series of faint blotches.

Callyodon sp.

This specimen does not appear to have been included in the manuscript. There is a small printed label with the figure 5 on the back of the skin.

1853.11.12.88. 192 mm.

Bodianus mesothorax (Bloch), 1801

Scarus mordax Gronovius (Gray), 1854 : 64. Holotype.

There is a very good pencil sketch of the specimen in the manuscript, the work of Bylaart and dated 1768.

1853.11.12.89. 139 mm.

Labrus merula L., 1758

Zoophyl. **1** : 67, 228.
Scarus viridis (*non* L.) Gronovius (Gray), 1854 : 63.
1853.11.12.90. 185 mm.

Hemigymnus melapterus (Bloch), 1791

This skin was not apparently included in the manuscript, and it does not agree with any of the species of *Scarus* described there, although a pencil note in Gray's hand reads *Scarus caninus*. Unless the published figure of 19 dorsal-fin spines in that species is incorrect it cannot be *S. caninus* as there are only nine spines in the present specimens' dorsal fin.

1853.11.12.91. 227 mm.

AMMODYTIDAE

Ammodytes lancea Yarrell, 1836

Mus. Ichth. **1** : 13, 35. *Zoophyl.* **1** : 133, 404.
Ammodytes tobianus (*non* L.) Gronovius (Gray), 1854 : 159.
1853.11.12.108. 145 mm.

TRACHINIDAE

Trachinus vipera Cuvier, 1829

Mus. Ichth. **1** : 42, 97 (part).
Trachinus horridus Gronovius (Gray), 1854 : 46. Holotype.

In the *Museum Ichthyologicum* Gronovius recognized two varieties of *Trachinus*; one was *Trachinus draco* L., the other was this species. The fin ray counts he gave on that occasion are identical with those made on this specimen, and it may be assumed that this is the specimen which he described in 1754.

1853.11.12.6. 104 mm.

Trachinus draco L., 1758

Mus. Ichth. **1** : 42, 97 (part). *Zoophyl.* **1** : 80, 274.
Trachinus draco, Gronovius (Gray), 1854 : 46.

The description in the *Museum Ichthyologicum* was the third cited by Linnaeus under this name. This skin is therefore part of the type series.

1853.11.12.7. 290 mm.

URANOSCOPIDAE

Uranoscopus scaber L., 1758

Callionymus araneus Gronovius (Gray), 1854 : 44. Holotype.
1853.11.12.10. 135 mm.

ACANTHUROIDEA

ZANCLIDAE

Zanclus cornutus (L.), 1758

Gonopterus moerens Gronovius (Gray), 1854 : 77. Holotype.
1853.11.12.73. 54 mm.

ACANTHURIDAE

Acanthurus hepatus (L.), 1766 Plate 31.

Zoophyl. **1** : 113, 353.
Acronurus fuscus Gronovius (Gray), 1854 : 191. Holotype.

Linnaeus based his name on five earlier descriptions, Brown (1756 : 455), Gronovius (1763 : 113), Seba (1758 : 104), Catesby (1743 : 10), and Valentyn (1726 : 77). The Gronovius description is the only one in which fin ray counts are given, and in which the description is at all detailed. As none of the specimens described in the other works are known to be in existence, the present specimen should be regarded as the type. It has already been accorded this status by Jordan & Evermann (1898 : 1692).

1853.11.12.101. 123 mm.

Siganoidae

Siganus javus (L.), 1766 Plate 30, fig. 1.

Zoophyl. **1** : 113, 352, tab. 8, fig. 4.
Teuthis brevirostris Gronovius (Gray), 1854 : 143. Holotype.

Linnaeus based his name *Teuthis javus* on descriptions in the *Zoophylacium*, and in Valentyn's *Oud & Nieuw Oost-Indiën* (1726), although the latter reference was probably copied from Gronovius who gave it in his " synonymy " of the species.

The illustration in Valentyn's work, like most of his figures, is very poor indeed, and the description gives no critical information. It appears to me, however, to represent, not a siganid but one of the species of *Acanthurus*. This opinion is independently confirmed by Cuvier & Valenciennes (1835 : 123) who wrote, " Gronovius lui-même se trompe en citant la figure 410 de Valentyn comme celle de son poisson : elle représente un acanthure ". Moreover, in the same volume (: 191) these authors refer this figure to *Acanthurus glaucopareius* Cuvier, 1829, although having regard to the quality of the description referred to, I can neither deny nor confirm this identification. This then, leaves the Linnean species as if based only on the specimen described by Gronovius.

There is no doubt that the present skin is the original of the Gronovius description, for the counts given there agree exactly, and the illustration is obviously of the same fish. After examination of the specimen I have concluded that although it is the type-specimen of *Teuthis javus* L., it is actually referable to the species that has hitherto been known as *Siganus oramin* Bloch, 1801. Some nomenclatural change is therefore inevitable. The name *Siganus oramin* becomes a synonym of *Siganus javus* (*sensu stricto*), and the species previously known as *S. javus* needs another name. Fortunately, it is not necessary to introduce another name as *Amphacanthus russelii* Cuv. & Val. is clearly a synonym of *S. javus* of authors. To summarize, the species previously known as *S. javus* (L.) must become *Siganus russelii* (Cuv. & Val.) and the name *Siganus oramin* Bloch must be replaced by *S. javus*. *Teuthis brevirostris* Gronovius (Gray) is an objective synonym of *Siganus javus* (L.).

1853.11.12.30. 133 mm.

Head length	35 (26)	Length of dorsal base	88 (67)
Snout length	13 (10)	,, ,, anal base	54 (41)
Diameter of orbit	12 (9)	,, ,, pectoral fin	23 (17)
Depth of suborbital	10 (8)	,, ,, first dorsal spine	13 (10)
,, ,, caudal peduncle	10 (8)	,, ,, fifth ,, ,,	19 (14)
,, ,, body at anus	47 (36)	,, ,, last ,, ,,	10 (8)
Snout to dorsal origin	38 (29)	,, ,, second anal spine	17 (13)

Dorsal XIII.10. Anal VII.9. Pectoral 12.

Body almost regularly oval, head nearly four times in standard length. Snout blunt, upper jaw prominent ; the nape to the upper jaw in a straight line. Pelvic fin origin posterior to the pectoral which is only slightly posterior to the first dorsal spine ; anal fin origin below the ninth dorsal spine. Pelvic fins shorter than the pectorals. Both dorsal and anal fins extend to the caudal peduncle which is very narrow and compressed. The caudal fin is forked. The third, fourth and fifth spines in the anal fin are nearly subequal, the first slightly longer than these and as long as the longest dorsal spine. The soft anal is low and the rays equal, but the tips are much damaged.

Colour : The dorsal surfaces of the snout, head and nape are a medium-dark brown, and the dorsal surface of the body light golden-brown, as are the fin spines and membranes, while below the colour is silvery. The head, body and tail are covered with numerous small round white blotches, which appear to be smaller than the ground colour in between each spot. There is a definite dark spot above the pectoral and at the base of the lateral line. The tips of the caudal fork are regularly coloured brown, and the markings on the caudal appear to be regular.

Siganus vulpinus (Schlegel & Muller), 1839–40

Teuthis tubulosa Gronovius (Gray), 1854 : 142. Holotype.
1853.11.12.31. 214 mm.

SCOMBROIDEA

Scombridae

Scomber scombrus L., 1758

Mus. Ichth. **1** : 34, 81. *Zoophyl.* **1** : 93, 304.
Cordylus scombrus, Gronovius (Gray), 1854 : 163.

The description in the *Museum Ichthyologicum* is the third quoted by Linnaeus. The other two references were to his own *Fauna Svecica* (1746 : 287) where no fin ray counts were given, and to Artedi (1783, **3** : 68). This specimen is therefore part of the type series.

1853.11.12.28. 202 mm.

GOBIOIDEA

Gobiidae

Gobioides broussoneti Lacépède, 1799–1800

Zoophyl. **1** : 82, 277.
Cepola unicolor Gronovius (Gray), 1854 : 188. Holotype.

For a detailed discussion of the nomenclature of this specimen see Palmer & Wheeler (1955).

1853.11.12.81. 170 mm.

CALLIONYMOIDEA

Callionymidae

Callionymus lyra L., 1758

Mus. Ichth. **1** : 23, 64. *Zoophyl.* **1** : 57, 206.
Uranoscopus lyra Gronovius (Gray), 1854 : 42.

Linnaeus based his name on descriptions in five earlier works, of which the *Museum Ichthyologicum* was the third. This specimen is therefore part of the type series.

1853.11.12.11. 164 mm. (Male.)

Callionymus lyra L., 1758

Mus. Ichth. **1** : 23, 65. *Zoophyl.* **1** : 57, 205.
Uranoscopus dracunculus (L.) Gronovius (Gray), 1854 : 42.

Although the name *dracunculus* was used by early authors for the female of *Callionymus lyra,* this specimen is a male.

1853.11.12.12. 169 mm.

Callionymus lyra L., 1758

Mus. Ichth. **1** : 21, 63. *Zoophyl.* **1** : 57, 204.
Uranoscopus micropterygius Gronovius (Gray), 1854 : 43. Holotype.

Linnaeus based his name *dracunculus* on the description in Gronovius (1754), and on a brief description given in Artedi (1738, **4** : 49). This specimen is therefore one of the type specimens of that species. *Callionymus dracunculus* is recognized by authors as a synonym for the female of *C. lyra.*

1853.11.12.13. 137 mm.

BLENNIOIDEA

ANARHICHADIDAE

Anarhichas lupus L., 1758

Mus. Ichth. **1** : 16, 44. *Zoophyl.* **1** : 131, 400.
Anarhichas lupus, Gronovius (Gray), 1854 : 188.

Linnaeus based this name on references to two earlier descriptions, one to Artedi (1738, **4** : 23), and the other to the description in the *Museum Ichthyologicum.* The latter is the only reference against which fin ray counts are given, and Artedi's account is very brief and generalized. This specimen is therefore part of the type series.

1853.11.12.27. 421 mm.

BLENNIDAE

Blennius cornutus L., 1758

Zoophyl. **1** : 76, 264.
Adonis cornutus, Gronovius (Gray), 1854 : 95.
1853.11.12.53. 121 mm.

Blennius ocellaris L., 1758

Adonis pavoninus Gronovius (Gray), 1854 : 93. Holotype.
1853.11.12.54. 128 mm.

Blennius cristatus L., 1758 Plate 29, fig. 4.

Mus. Ichth. **1** : 32, 75. *Zoophyl.* **1** : 76, 263, tab. 6, fig. 4.
Adonis cristatus, Gronovius (Gray), 1854 : 95.

Linnaeus based the name *Blennius cristatus* on the description of this specimen in the *Museum Ichthyologicum*, and it is therefore the holotype of that species.

1853.11.12.55. 48 mm.

Head length	13	(26)	Length of dorsal base	39	(81)
Snout length	5·5	(12)	,, ,, anal base	23	(48)
Snout to dorsal origin	12	(25)	Diameter of orbit	4	(9)
,, ,, anal origin	24	(50)	Body depth at pectoral origin	13	(26)
Maxillary length	5	(10)	,, ,, ,, anal origin	11	(24)

Dorsal XII.14. Anal 18. Pectoral 14.

Body naked, short and deep, with a deep head the profile of which is almost vertical; vertical fins long and moderately high; dorsal rising just posterior to the orbit and anal nearly opposite the mid-point of the body. The head is relatively large, its length nearly four in the standard length. and depth equal to or greater than, the greatest body depth. Mouth small, both jaws armed with a single row of small incisiform teeth, sixteen in the upper jaw, and fifteen in the lower. There is a single posterior caniniform tooth in the lower jaw. The eye is situated high on the head, about two in snout, and on the dorsal border of the orbit, there is a small branched cirrus. There is an extensive patch of cirri on the nape, originating above the centre of the orbit and extending to the origin of the first dorsal ray. The nostril also bears a small bunch of cirri.

Pectoral fin large, the longest ray nearly equal to the head length, and extending well past the anal origin. Pelvics are jugular, origin at a level mid-way between the orbit and the pectoral origin. The first twelve rays of the dorsal fin are simple, and rather shorter than the branched rays. The first two anal rays are short and were apparently fleshily thickened, the remainder are of equal height. The last dorsal and anal rays just reach the origin of the caudal which is regular and truncate.

Colour: Appears to have been uniformly dark brown dorsally, and rather lighter at the sides and ventrally. No colour pattern is visible.

It should be noted that the original description contained no reference to locality, and Linnaeus (1758 : 256) wrote " Habitat in Indiis ", although Pinto (1954) has redescribed the species from material collected in the Districto federal, Brazil, and claimed that this could be assumed to be the region in which the present specimen was collected.

CLINIDAE

Clinus superciliosus (L.), 1758

Blennius mycterizans Gronovius (Gray), 1854 : 97. Syntypes.

Although the Linnaean species *Blennius superciliosus* was based on a specimen described in the *Museum Ichthyologicum*, none of the present specimens agree sufficiently well with that description to be safely considered to be the original specimens.

1853.11.12.49.	143 mm.
1853.11.12.50.	205 mm.
1853.11.12.51.	224 mm.

Clinus ? superciliosus (L.), 1758

Blennius ignobilis Gronovius (Gray), 1854 : 98. Holotype.

This is not the specimen described in the *Museum Ichthyologicum* (**2** : 21, 173), which was 4·66 inches (120 mm.) long.

1853.11.12.52.	184 mm.

PHOLIDIDAE

Centronotus gunnellus (L.), 1758

Zoophyl. **1** : 78, 267.
Pholis gunnellus, Gronovius (Gray), 1854 : 99.
1853.11.12.148. 158 mm.

ZOARCIDAE

Zoarces viviparus (L.), 1758

Mus. Ichth. **1** : 65, 145. *Zoophyl.* **1** : 77, 265.
Enchelyopus viviparus, Gronovius (Gray), 1854 : 100.

The *Museum Ichthyologicum* was the third of five references quoted by Linnaeus under the name of *Blennius viviparus*. This specimen is therefore probably part of the original type material.

1853.11.12.122. 253 mm.

Zoarces viviparus (L.), 1758

This may be the specimen which Gray (in Gronovius (Gray), 1854) indicated was described as *Enchelyopus americanus* in the manuscript, but unfortunately the sheet on which these specimens were mounted has been cut in half, and the lower part which would have borne the Gronovius name, is missing. It is possible that the sheet was whole when Gray identified, it but we have no means of confirming this. If it is the type specimen of *E. americanus* (type locality—Oceano Americano), then one would expect that it would be referable to *Zoarces anguillaris* (Peck), 1804, but this is not the case. The dorsal and anal fin ray counts do not agree with those given for that species by Jordan & Evermann (1898 : 2457), although there is an indication that the colour pattern on the head of this specimen might be the same as that which is described for the American species.

1853.11.12.123. 175 mm.

OPHIDIIDAE

Ophidion barbatum L., 1758

Zoophyl. **1** : 131, 401.
Ophidion congrus Gronovius (Gray), 1854 : 164. Holotype.
1853.11.12.124. 508 mm.

STROMATEIDEA

Mupus ovalis (Valenciennes), 1833

This specimen was not apparently included in the manscript, nor does its sheet bear a Gronovius name.

1853.11.12.46. 57 mm.

ANABANTOIDEA

ANABANTIDAE

Trichogaster trichopterus (Pallas), 1769.

Stethochaetus biguttatus Gronovius (Gray), 1854 : 174. Holotype. " Habitat in India ".

This specimen was discovered whilst curating the dry collection of *Stethojulis*, with which genus it had been confused. The Gronovius name was a *species inquirendae* until Fraser-Brunner (1952) published an account of its discovery ; he was, however, not correct in stating that " its identity has not been established up to the present time ", for Gray (1854*a*) in listing the Gronovius names which would have had priority had the manuscript been published shortly after it was written, included *Stethochaetus* is a synonym of *Trichopus* Lacépède, in which genus this species was then included.

Fraser-Brunner has pointed out the confusion that resulted from the ignorance of the identity of this name. Jordan & Seale (1926) had used the name *Stethochaetus* to replace *Heterothrissa* (Günther), an engraulid fish, but, to do this had to alter the published facts to fit their theory. They assumed that the number of anal rays (36 in the manuscript) was a misprint for 63, ignored the statement that the first eleven rays were stated to be aculeate, and added " the pectoral filament is said to be as long as the body ", whereas, the description quite clearly states that the filament was in place of the pelvic fin. Probably Jordan was responsible for this curious perversion of Gronovius's description, for earlier (1919 : 259) he had stated, " *Stethochaetus* Gronow . . . a synonym of Setapinna Sw. (*Telara* Gthr.) ". Fowler (1941) followed Jordan & Seale in applying *Stethochaetus* as a subgenus of *Setapinna*.

This specimen is loose and no longer mounted on its sheet of paper, which was possibly its condition when the collection was purchased, as it has a label in Gray's hand tied to it. Fortunately, it can be identified for certain as Gronovius material by the original label which is stuck on the back of the skin. It has suffered some damage to the tip of the caudal rays, the pelvic filament, and the head and snout.

1853.11.12.77. 89 mm.

MUGILOIDEA

MUGILIDAE

Mugil ?ramada Risso, 1826

Mus. Ichth. **1** : 35, 85. *Zoophyl.* **1** : 129, 397.
Mugil cephalus (*non* L.) Gronovius (Gray), 1854 : 162.
1853.11.12.26. 266 mm.

ATHERINIDAE

Atherina presbyter Cuv. & Val., 1829

Mus. Ichth. **1** : 23, 66. *Zoophyl.* **1** : 130, 399.
Atherina hepsetus (*non* L.) Gronovius (Gray), 1854 : 190.

In Gronovius (1754) the anal fin was stated to have ten rays, which is possibly the reason why Günther (1861 : 392) suggested that the Gronovius specimen had been damaged. However, he failed to recognize this specimen as the *Atherina* described by Gronovius, and a careful count of the rays in that fin shows that there are sixteen, although damage makes the last rays difficult to count.

The description in the *Museum Ichthyologicum* was used by Linnaeus as one of three references on which he based his *Atherina hepsetus*. The other references were to Artedi (1738, **5** : 117), and to Hasselquist (1757 : 382). There seems to be no doubt that the specimen described by Artedi, was in fact, the *Atherina hepsetus* of authors, although the inclusion of the Gronovius description in the type series made the Linnaean species composite. There is no necessity for any nomenclatural change, however, for the species appears to have been adequately restricted to the *hepsetus* of authors by Bloch (1794 : 158, pl. 393, fig. 3.).

1853.11.12.79. 65 mm.

POLYNEMOIDEA

POLYNEMIDAE

Polynemus hexanemus Cuv. & Val., 1829

Polynemus senarius Gronovius (Gray), 1854 : 176. Holotype.
1853.11.12.59. 118 mm.

SCLEROPAREI

SCORPAENIDAE

Scorpaena sp.

Mus. Ichth. **1** : 46, 103. *Zoophyl.* **1** : 87, 290.
Scorpaena barbata Gronovius (Gray), 1854 : 116. Holotype.

Linnaeus's species *Scorpaena scrofa* was based on two references, the *Museum Ichthyologicum* being one. The other is to Artedi's (1738, **4** : 47, **5** : 76) description. The status of this Linnaean species is most confusing for Artedi gave no real description and only a pectoral fin ray count. Linnaeus was obviously dubious that the description by Gronovius was of the some species, for he put a mark of interrogation after the reference. I am doubtful if this specimen is referable to the *Scorpaena scrofa* of authors (it has seventeen pectoral rays, *scrofa* has 19–20 (Norman, 1935)), and it seems desirable that this problem should receive attention in some future revision of the genus.

1853.11.12.8. 63 mm.

Dendrochirus brachyptera (Cuvier), 1829

Mus. Ichth. **2** : 33, 191. *Zoophyl.* **1** : 89, 294.
Scorpaena volitans (*non* L.) Gronovius (Gray), 1854 : 119.

There is a figure, probably of *Pterois volitans* but labelled *Perca* **** in the manuscript, but it does not represent the present specimen.

Linnaeus's name *Gasterosteus volitans* (= *Pterois volitans*) was primarily based on the description given by Gronovius in the *Museum Ichthyologicum*, for this is the only reference against which fin ray counts are given. The other references were to Willughby's *Ichthyologicum* (1686 : app. 1, tab. 2), Ruysch (1710 : 39, tab. 2, fig. 3), and Valentyn (1726 : 413, 415). There is no doubt that the specimen described in 1756 by Gronovius, was the present skin, for the counts and measurements that he gives are identical with those made on the specimen, and it must therefore be part of the type series of *Pterois volitans* (L.). Fortunately, of the other descriptions Linnaeus cited, that of Ruysch, and possibly also that of Willughby, can be considered to be compiled from specimens of *Pterois*. There is therefore no necessity to interfere with the accepted nomenclature of this well known species.

1853.11.12.9. 109 mm.

Head length	45 (41)	Snout to first dorsal	37 (34)
Maxillary length	19 (17)	,, ,, anal origin	82 (75)
Diameter of orbit	13 (12)	Length of dorsal base	69 (63)
Length of snout	14 (13)	,, ,, anal base	17 (16)
Depth of suborbital	15 (14)	,, ,, pectoral fin	57 (52)
,, ,, caudal peduncle	13 (12)		

Dorsal XIII.10. Anal III.6. Pectoral 17.

Body moderately deep, about 2·25 in standard length, head relatively large and very rugose. Mouth large, maxillary extending to below pupil; the eye is large and equals the snout which is ·33 of the head length. There is a pronounced spiny ridge across the cheek, and this ends opposite three flattened spines on the preoperculum. The upper edge of the orbit is well armed with five large spines or groups of spines and this series is continued in a ridge across the upper margin of the operculum; there are also two groups of spines on the nape. This specimen still shows the long fleshy orbital tentacle and a shorter one on the edge of the nostril.

Dorsal fin long, the spines both long and pungent, the soft rays are much shorter, the longest only a little more than half the length of the longest spine. The rays in both the pelvic and pectoral fins are elongate, particularly in the latter, where they are almost equal to the body length. Head and body covered with large ctenoid scales, about fifty in the lateral line and eight above it to the base of the eighth dorsal spine. Pectoral rays two to nine are branched.

Colour: Body and vertical fins marked with six conspicuous dark wide vertical stripes, between which the colour is light golden-brown. These wide dark bands alternate on the back with shorter, narrower bands within the light stripes. The membrane of the pectoral and pelvic fins appears dark, while the fin rays are light. The conspicuous vertical stripes on the body, extend to the head, one wide stripe crossing the upper edge of the operculum to the pectoral base, and another running through the eye and vertically down the cheek. There appears to be another stripe running across the snout to the end of the maxillary.

Sebastichthys capensis (Gmelin), 1788 Plate 32.

Zoophyl. **1**: 88, 293.
Perca afra Gronovius (Gray), 1854: 113. Holotype.

The description of this specimen in the *Zoophylacium* is the only one quoted by Gmelin; this is thus the holotype of this species.

1853.11.12.? 80. 229 mm.

Head length	100 (44)	Length of snout	29 (13)
Depth of body	100 (44)	Snout to first dorsal	88 (38)
Length of maxillary	43 (19)	,, ,, anal fin	170 (74)
Depth of maxillary	14 (6)	Depth of caudal peduncle	22 (10)
Diameter of orbit	25 (11)	Length of dorsal base	133 (60)
Length of anal base	30 (13)	Length of pectoral fin	61 (26)

Dorsal XII.13. Anal III.6. Pectoral 18.

Body and head deep and thickset, head 2·25 into standard length. Eye large, nearly four into head, its hind edge vertically above the end of the maxillary when mouth is closed. Head moderately well armed, four large spines at angle of preoperculum, of equal size and equally spaced; tip of operculum angulate, with two flattened, partially concealed spines anteriorly. Remains of the head armour can be seen in this skin, and consist of a large supra-orbital spine, and behind it two smaller spines lying in the same plane; there is an equally large spine on the nape.

The body is broadly ovate and covered with medium sized scales, about forty-two in the lateral line, and eight above it to the seventh dorsal spine. The spinous dorsal origin is above the pelvic origin, while the pectoral fin rises below the third dorsal spine; the first anal spine is directly beneath the origin of the dorsal fin. The first two and the lower nine pectoral rays are simple. The head, with the exception of the lower jaw, is closely scaled. Both jaws armed with numerous fine teeth in a broad band in front, but narrower laterally.

Colour: Head darker than the rest of the body, the dorsal surface of the body darker than the belly. There are several small light blotches on the back, each smaller than the orbit, and the edge of the dorsal fin membrane appears light. Lower rays of the pectoral fin have dark tips, and there appears to be a darker central spot in many of the scales on the body. Otherwise the colour is mainly light golden-brown.

TRIGLIDAE

Trigla gurnardus L., 1758

Mus. Ichth. **1** : 44, 101. *Zoophyl.* **1** : 84, 283.
Trigla aspersa Gronovius (Gray), 1854 : 105. Holotype.

The description in the *Museum Ichthyologicum* was referred to by Linnaeus under the name of *Trigla gurnardus*; he also gave Artedi's (1738, **4** : 46) description, and in addition, apparently had a specimen in his own collection.

1853.11.12.15. 243 mm.

Trigla lucerna L., 1758

Mus. Ichth. **1** : 44, 100. *Zoophyl.* **1** : 84, 284.
Trigla cuculus (*non* L.) Gronovius (Gray), 1854 : 105.

The description of this specimen in the *Museum Ichthyologicum* was referred to by Linnaeus, as was a description by Artedi (1738, **4** : 45). The present specimen is therefore part of the type series.

1853.11.12.16. 221 mm.

CONGIOPODIDAE

Congiopodus torvus (Gronovius), 1772 Plate 33.

Blennius torvus Gronovius, 1772 : 47, tab. 3. Holotype.
Cephalinus glaber Gronovius (Gray), 1854 : 159. Holotype. " . . . in Mari Indico ".

Despite the fact that the name *Blennius torvus* was validly published in 1772, and the species was adequately described, recent authors persistently attribute it to Walbaum (1792 : 187) who, however, quite plainly referred to the Gronovius description of the fish.

1853.11.12.99. 434 mm.

Head length	113 (26)	Length of anal base	46 (10)
Snout length	57 (13)	,, ,, pectoral fin	111 (26)
Orbit diameter	27 (6)	Greatest body depth	122 (28)
Snout to pectoral base	94 (22)	Depth of caudal peduncle	24 (5)
,, ,, anal origin	276 (63)	Length of third dorsal spine	146 (33)

Dorsal XXI.13. Anal II.7. Pectoral 9.

Body laterally compressed, high, with steep profile. Greatest depth at level of pelvic fin base, posterior to which the depth gradually decreases. Head and body naked, skin smooth, a series of pores in the lateral line, sixteen in number, follows the dorsal profile at a height of less than ·33 of the body depth below the profile. Head protected by rugose plates, mainly confined to the upper half, with narrow plates bordering the orbit, above, below and behind; and a more massive plate above the pre-operculum and below the fourth and fifth dorsal spines. A small plate is situated on the upper angle of the operculum. Orbit large, nearly 1·5 times in snout, but the eye diameter is about half that of the orbit, although this may be due to shrinkage. Mouth protractile, gape small, about six in head length, both jaws lined with extensive bands of villiform teeth. Lower part of head smooth and unarmoured. (Part of the snout immediately in front of the eye is missing.)

Dorsal fin origin above pupil, single, its anterior part composed of strong stout spines, of which the first seven are very long; the third spine is longest and about 1·3 times the head length. Dorsal rays not greatly produced, about two in head, first three simple, the rest all branched. Caudal fin small slightly forked, one of the the upper rays greatly swollen (hyperosteosis). The anal fin is short based; its longest rays slightly longer than the branched dorsal rays. Pectoral and pelvic fins both long, almost equal, pectoral base just anterior to that of the pelvic; the length of the pelvic equals the head.

Colour: A uniform dark brown, with only the membrane of the high spinous dorsal and the pectoral and pelvic fins darker, especially the latter where the membrane is almost black.

Cottidae

Cottus scorpius L., 1758

Mus. Ichth. **1**: 46, 104. *Zoophyl.* **1**: 78, 268.
Cottus scorpius, Gronovius (Gray), 1854: 102.

The description in the *Museum Ichthyologicum* was quoted by Linnaeus in his description of *Cottus scorpius*, although there are references also to two of his own works (Linnaeus 1751: 325; 1749, **1**: 70), and to a description by Artedi (1738, **3**: 86; **4**: 49).

1853.11.12.17. 143 mm.

Agonidae

Agonus cataphractus (L.), 1758

Mus. Ichth. **1**: 46, 105. *Zoophyl.* **1**: 79, 271.
Cottus cataphractus, Gronovius (Gray), 1854: 103.
1853.11.12.18. 100 mm. (Lateral surface.)
1853.11.12.19. 136 mm. (Dorsal surface.)

Cyclopteridae

Cyclopterus lumpus L., 1758

Mus. Ichth. **1** : 56, 127. *Zoophyl.* **1** : 54, 197.
Cyclopterus lumpus, Gronovius (Gray), 1854 : 39.

Under this name Linnaeus quoted four references, two were to descriptions in his own earlier works (1749, **1** : 57; 1746 : 275), one was to Artedi's (1738, **4** : 62) description, and the fourth was to the *Museum Ichthyologicum.* Of these references the only adequate description with fin ray counts included, is that of Gronovius. This specimen is therefore part of the original type series.

1853.11.12.183. 371 mm.

Liparidae

Liparis liparis (L.), 1758 Plate 29, fig. 2.

Mus. Ichth. **2** : 9, 157. *Acta Helvetica* 1760, **4** : 265, 165, tab. 13, " Hab. ad littora nostra marina ". *Zoophyl.* **1** : 55, 198.
Cyclogaster liparis, Gronovius (Gray), 1854 : 40.

The original drawing of the figure in Gronovius (1760) is still preserved in the manuscript.

The name *Cyclogaster liparis* was based on two references, namely to Artedi (1738, **5** : 117) and to Gronovius's descriptions of 1760 and 1756. The reference to Artedi, who gave no more than a list of synonyms and not a description, was, however, qualified by a question mark, and Linnaeus was obviously doubtful of its application to the specimen described by Gronovius. It is obvious then,that this specimen should be regarded as the type of the species.

1853.11.12.182. 85 mm.

Head length	24 (27)	Snout to anal origin	47 (53)
Snout length	9 (10)	Height of dorsal fin	10 (11)
Orbit diameter	3 (3)	Maxillary length	11 (12)
Snout to dorsal origin	24 (27)	Length of disc	13 (15)

Dorsal 35. Anal 30. Pectoral 33.

Body short and deep, with a heavy depressed, blunt head. Mouth broad, gape wide, jaws bearing several rows of very small teeth, each with a high central point and two weaker lateral lobes. At the tip of the jaw these rows of teeth are greatly increased. The snout is blunt and round, the lower jaw in included, gape extends to front edge of eye. The first rays of the dorsal fin are considerably shorter than the hind rays, the fifth and sixth rays being the shortest. Posteriorly the rays rise evenly and are longest at approximately the twentieth to the twenty-fifth rays, after which they decrease in length ; the last ray is joined to the caudal by a short membrane. Caudal fin short ; truncate, its rays a little longer than those in the dorsal fin ; the connection with the last dorsal ray only involves the posterior quarter of the tail. Anal fin similar to the dorsal but shorter.

The disc in this specimen is folded over on itself and against the pectoral fin, rendering it almost impossible to measure exactly. The figure given above (13 mm.) is as near an approximation as could be made.

Colour: A nearly uniform golden-brown, dorsally on the head darker. Some indistinct markings on the dorsal and anal fins appear to be the remains of a fairly general darker brown mottling which ran in irregular lines on those fins. (Recent collecting has shown that the colour pattern of this species is very variable within each locality, and undue reliance cannot be placed on it as of taxonomic importance, as has been suggested by authors.)

THORACOSTEI

GASTEROSTEIDAE

Gasterosteus aculeatus L., 1758

Mus. Ichth. **1**: 49, 111. *Zoophyl.* **1**: 134, 405.
Gasterosteus aculeatus, Gronovius (Gray), 1854: 167.

1853.11.12.47.	52 mm.

Pygosteus pungitus (L.), 1758

Mus. Ichth. **1**: 50, 122. *Zoophyl.* **1**: 134, 406.
Gasterosteus pungitus, Gronovius (Gray), 1854: 167.

1853.11.12.212.	29 mm.
1853.11.12.213.	31 mm.
1853.11.12.214.	33 mm.

Spinachia spinachia (L.), 1758.

Mus. Ichth. **1**: 50, 133. *Zoophyl.* **1**: 134, 407.
Gasterosteus marinus Gronovius (Gray), 1854: 168. Holotype.

1853.11.12.48.	128 mm.

HETEROSOMATA

SCOPTHALMINAE

Scopthalmus maximus (L.), 1758

Mus. Ichth. **2**: 10, 159. *Zoophyl.* **1**: 74, 254.
Pleuronectes rhombus (*non* L.) Gronovius (Gray), 1854: 90.

Linnaeus referred to descriptions in four earlier works, of which one was the *Museum Ichthyologicum*, this specimen is therefore part of the original type series. The other references were to Linnaeus (1745: 178; 1746: 298), and Artedi (1738, **4**: 18). There are two specimens of this species in the Linnaean collection (Günther, 1899).

1853.11.12.135.	173 mm.

PLEURONECTIDAE

Hippoglossus hippoglossus (L.), 1758

Mus. Ichth. **2**: 10, 158. *Zoophyl.* **1**: 73, 247.
Pleuronectes hippoglossus, Gronovius (Gray), 1854: 87.

Linnaeus based his name on three earlier descriptions, in Linnaeus (1746: 302), Artedi (1738, **4**: 17) and Gronovius *Museum Ichthyologicum.* This specimen is therefore part of the type series.

1853.11.12.127.	340 mm.

Limanda limanda (L.), 1758

Mus. Ichth. **1** : 15, 41. *Zoophyl.* **1** : 73, 249.
Pleuronectes linguatula L. (part) Gronovius (Gray), 1854 : 88.

The Linnaean name *Pleuronectes linguatula* was based on references to two earlier descriptions, by Artedi (1738, **4** : 17) and Gronovius (1754) respectively. The present specimens are thus part of the type series. Norman (1934) has already pointed out that this Linnaean species is composite, but he considered that Schneider (inBloch, 1801) restricted the use of the name adequately, and that no nomenclatural change was necessary.

1853.11.12.128. 143 mm. (Ocular side.)
1853.11.12.129. 134 mm. (Blind side.)

Pleuronectes platessa L., 1758

Mus. Ichth. **1** : 14, 36. *Zoophyl.* **1** : 72, 246.
Pleuronectes platessa, Gronovius (Gray), 1854 : 87.

The description in the *Museum Ichthyologicum* was mentioned by Linnaeus under this name, as the fourth of four references. These specimens are therefore probably part of the original type series.

1853.11.12.130. 211 mm.
1853.11.12.131. 203 mm.

Glyptocephalus cynoglossus (L.), 1758 Plate 34.

Mus. Ichth. **2** : 11, 39. *Zoophyl.* **1** : 74, 252.
Pleuronectes cynoglossus, Gronovius (Gray), 1854 : 88.

In the *Museum Ichthyologicum* the total length of the specimen described was given as fourteen inches, which agrees with the present specimen. Linnaeus referred to only one earlier description, namely that in the *Museum Ichthyologicum*, and this specimen is therefore the holotype of the species. Norman (1934 : 366) listed this specimen as having been examined, although he also remarked that the type could not be traced.

1853.11.12.126. 317 mm.

Head length	54	(17)	Width of body	96	(31)
Maxillary length	11	(3·5)	Snout to anal origin	80	(26)
Snout length	9	(3)	Longest anal ray	25	(8)
Orbit diameter	14	(4)	„ pectoral ray	34	(11)
Length of lower jaw	17·5	(6)	Length of caudal fin	58	(19)

Dorsal 112. Anal 102. Caudal 16.

Body regularly ovoid, width nearly three in length. Head moderately large, about 5·5 in standard length, lower jaw protruding. Eyes large, the lower slightly in advance of upper ; interorbital ridge narrow and apparently low. Maxillary extends to below the edge of the lower eye, its length about five in head length ; teeth in a single row in each jaw, blunt and rather compressed.

The pectoral fin is moderately long but is less than the head length, its origin is directly above the pelvic origin. Anal fin origin immediately behind the pelvic, the rays longest between the eleventh and the fifty-second rays, after which they decrease in size gradually; longest ray equals nearly half the head. The dorsal fin is a similar shape, its origin above the centre of the upper eye, and the longest rays between the thirtieth and the seventieth, equal the anal fin rays in length.

The body is covered with rather large cycloid scales, which in this specimen are nearly all missing; there appear to be between 110 and 115 in the lateral line but due to the pectoral fin overlying it and the damage to the scales, it is not possible to count more accurately than this. The lateral line is almost straight but with a slight curve upwards in the region of the pectoral fin.

Colour: No general colour pattern visible except for the usual golden-brown of the covering varnish; the tips of the pectoral and caudal fins, and possibly the vertical fins also, appear to be rather darker than the body.

Platichthys flesus flesus (L.), 1758

Mus. Ichth. **1** : 15, 40. *Zoophyl.* **1** : 73, 248.
Pleuronectes flessus, Gronovius (Gray), 1854 : 88.

Linnaeus referred to five earlier works under this name, and the *Museum Ichthyologicum* was the fourth of them. These specimens are therefore probably part of the original type series. The other references were to descriptions in Artedi (1738, **3** : 59; **4** : 17) and Linnaeus (1751 : 326; 1746 : 300).

1853.11.12.133.	143 mm.	(Ocular side.)
1853.11.12.132.	139 mm.	(Reversed specimen, ocular side.)
1853.11.12.134.	152 mm.	(Blind side.)

SOLEIDAE

Solea solea (L.), 1758

Mus. Ichth. **1** : 14, 37. *Zoophyl.* **1** : 74, 251.
Pleuronectes solea, Gronovius (Gray), 1854 : 89.
1853.11.12.125. 146 mm.

DISCOCEPHALI

ECHENEIDIDAE

Echeneis naucrates L., 1758

Mus. Ichth. **1** : 13, 34, " . . . mare Atlanticum ". *Zoophyl.* **1** : 75, 257.
Echeneis fusca Gronovius (Gray), 1854 : 92. Holotype.
1853.11.12.117. 213 mm.

PLECTOGNATHI

BALISTIDAE

Balistes vetula L., 1758

Zoophyl. **1** : 53, 195.
Balistes equestris Gronovius (Gray), 1854 : 31. Holotype.
1853.11.12.190. 113 mm.

Balistes carolinensis Gmelin, 1788

Mus. Ichth. **1** : 53, 117. *Zoophyl.* **1** : 51, 187.
Balistes capriscus Gronovius (Gray), 1854 : 30. Holotype.

Gmelin founded his species *Balistes capriscus* on a series of earlier descriptions and figures, but primarily on the two descriptions by Gronovius as cited above. Günther (1870 : 217) claimed that this specimen was the type of Gmelin's *capriscus*, and in this he was largely correct, for the remaining twelve references are all apparently copied straight from the " synonymy " given by Gronovius.

1853.11.12.187. 43 mm.

Balistes carolinensis Gmelin, 1788

Balistes carolinensis Gronovius (Gray), 1854 : 29. Holotype.

Although this specimen is not labelled as such it is very probable that it was part of Garden's collection. The note in the manuscript " Anglis Carolinam inhabitantibus audit *Rabbit* Fish " also suggests this. The Gronovius (Gray) name *carolinensis* appears to be an independent proposal to that of Gmelin.

1853.11.12.186. 251 mm.

Balistes niger Park, 1794

Balistes verrucosus Gronovius (Gray), 1854 : 33. Holotype, " . . . in Mari Indico ".
1853.11.12.194. 259 mm.

Balistapus undulatus (Park), 1794

Balistes porcatus Gronovius (Gray), 1854 : 32. Holotype, " . . . in mari Indico ".
1853.11.12.192. 188 mm.

Xanichthys ringens (L.), 1758

Zoophyl. **1** : 53, 196.
Balistes nitidus Gronovius (Gray), 1854 : 36. Holotype, " in Oceano Americano ".

The description in the *Zoophylacium* was the only reference given by Gmelin (1788). under his name *Balistes curassavicus*, this specimen is therefore the holotype of that species, and that name a synonym of *Xanichthys ringens*.

1853.11.12.189. 76 mm.

Xanichthys ringens (L.), 1758

Zoophyl. **1** : 52, 190.
Balistes notatus Gronovius (Gray), 1854 : 36. Holotype.
1853.11.12.188. 133 mm.

Canthidermis maculatus (Gmelin), 1788

Zoophyl. **1** : 52, 192. " . . . in Oceano Americano ".
Balistes rufus Gronovius (Gray), 1854 : 36. Holotype.

This specimen is also the holotype of Gmelin's *Balistes americanus*, for the description in the *Zoophylacium* was the only one quoted under that name.

1853.11.12.193. 32 mm.

MONACANTHIDAE

Monacanthus chinensis (Bloch), 1786

Balistes granulosus Gronovius (Gray), 1854 : 34. Holotype, " . . . in mari Indico ".

This is not the specimen described in the *Museum Ichthyologicum* to which Bloch (1786) and Gmelin (1788) referred, for the length was given there as two inches.

There is a drawing labelled *B. granulosus* in the manuscript, which is not of the present specimen, it may represent the earlier one.

1853.11.12.191. 110 mm.

TETRODONTIDAE

Amblyrhynchotes honckenii (Bloch), 1785

Holocanthus lagocephalus (*non* L.) Gronovius (Gray), 1854 : 25.

This is not the specimen described in the *Zoophylacium* (**1** : 49, 183) as the measurements there are inconsistent with those made on this specimen.

1853.11.12.174. 178 mm.

Lagocephalus laevigatus (L), 1766

Holocanthus melanothos Gronovius (Gray), 1854 : 24. Holotype.

This specimen is part of Garden's Carolina collection (number 17). Jordan & Evermann (1898) state that the Gronovius species was " based on *Tetrodon laevigatus* of Linnaeus " which is plainly incorrect. Linnaeus's type specimen came from the same collector, however, which may have led to this confusion.

1853.11.12.175. 335 mm.

PEDICULATI

ANTENNARIOIDEA

ANTENNARIDAE

Histrio histrio (L.), 1758

Mus Ichth. **1** : 53, 116. " Mare Atlanticum, Hispanicum atque Indicum, ubi inter Algas multoties reperitur ". *Zoophyl.* **1** : 58, 208. " Habitat in Mari Fucoso ".
Lophius histrio, Gronovius (Gray), 1854 : 48.
1853.11.12.92. 36 mm.

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10. REFERENCES

ARTEDI, P. 1738 (ed. Linnaeus, C.). *Ichthyologia sive Opera omnia de Piscibus* . . . 5 pts. in 1 vol. Leiden.

BIJLEVELD, W. J. 1942. Het geslacht Gronovius. *De Nederlandsche Leeuw* **59** : 1–8.

BLOCH, M. E. 1782. *Naturgeschichte der Fische Deutschlands*, **1** : 65.

—— 1785–95. *Naturgeschichte der ausländischen Fische*, **1–9**. Berlin.

—— 1801 (ed. Schneider, J. G.). *Systema Ichthyologiae.* 2 vols. 584 pp. Berlin.

Boddaert, P. 1770. *Epistola . . . ad Johannem Burmanium . . . de Chaetodonte Argo.* 43 pp. Amsterdam.

Browne, P. 1756. *The Civil & Natural History of Jamaica.* 503 pp. London.

Brunn, A. 1935. Flying-Fishes (*Exocoetidae*) of the Atlantic. *Rep. Dana Exped.* **6** : 22.

Catesby, M. 1743. *The Natural History of Carolina,* **2** : 1–31. London.

Cuvier, G. & Valenciennes, A. 1828. *Hist. Nat. Poissons,* **1**, 270 pp. Paris.

—— —— 1835. op. cit. **10**. 482 pp. Paris.

de Beaufort, L. 1940. *Fishes of the Indo-Australian Archipelago,* **8** : 408.

de Blainville, H. D. 1825. *Faune Francaise* (**13**) : 53.

Engel, H. 1939. Alphabetical List of Dutch Zoological Cabinets . . . *Bijdragen tot de Dierkunde,* **27** : 247–306.

Forskål, P. 1775. *Descriptiones Animalium* . . . 164 pp. Hauniae.

Fowler, H. W. 1941. Fishes of the Philippine Islands . . . *Bull. U.S. Nat. Mus.* **100**, 13 : 691.

Fraser-Brunner, A. 1933. A revision of the Chaetodont fishes of the subfamily Pomacanthinae. *Proc. zool. Soc. Lond.* : 543–599.

—— 1950. A revision of the Fishes of the family Gasteropelecidae. *Ann. Mag. nat. Hist.* (12) **3** : 959–970.

—— 1952. The true identity of the fish *Stethochaetus biguttatus. Ibid.* (12) **5** : 138.

Gmelin, J. 1789. *C. a Linné Systema Naturae. Editio decima tertia . . . cura J. F. Gmelin,* **1** (3) : 1126–1516. Lipsiae.

Gray, J. E. 1854 (*in* Gronovius, 1854). *Catalogue of Fish collected . . . by Laurence Theodore Gronow . . .* 196 pp. London.

——1854*a*. Account of a MS. of Laurens Theodore Gronov lately purchased for the British Museum, with a collection of dry fish . . . *Ann. Mag. nat. Hist.* (2) **13** : 41–45.

Gronovius, J. F. 1738–43. *Flora Virginica exhibens Plantas Quas V.C. Johannes Clayton in Virginia observavit atque collegit.* 2 pt. 206 pp. Leiden.

—— 1740. *Index suppellectilis Lapideae, quam collegit J. F. Gronovius.* 31 pp. Leiden.

—— 1744. A method of preparing specimens of fish by drying their skins. *Phil Trans. roy. Soc.* 1742–43. **42** : 57–58.

—— 1746. Pisces Belgii . . . *Acta Soc. R. Sci. Upsal.* (1741) : 67–76.

—— 1748. Pisces Belgii Descripti . . . *Ibid.* (1742) : 79–107. Tab. 3.

—— 1751. Pisces Duo . . . *Ibid.* (1744–50) : 36–42. Tab. 4.

—— 1755. *Flora Orientalis sive Recensio Plantarum quas Botanicorum Coryphaeus Leohardus Rauwolffus . . . collegit, etc.* 150 pp. Leiden.

Gronovius, L. T. 1751. 1751. *Dissertatio juridica inauguralis* . . . 34 pp. Leiden.

—— 1754. *Museum Ichthyologicum, sistens Piscium indigenorum & quorundam exoticorum, qui in Museo Laurenti Theodori Gronovii . . .* adservantar 70 pp. 4 pls. Leiden.

—— 1756. *Musei Ichthyologici tomus secundus* . . . 88 pp. 3 pls. Leiden.

—— 1757. Brief aan N . . . , behelzende eene Nieuwe Waarneeming omtrent zeker Zeegewas. *Uitgez. Verh.* **2** : 219–221.

—— 1760. *Bibliotheca Botanica sive Catalogus Auctorum et Librorum, qui de Re Botanica, de Medicamentis ex Vegetabilibus* . . . 587 pp. Leiden.

—— 1760. *Bibliotheca Regni Animalis atque Lapidei* . . . 326 pp. Leiden.

—— 1760. Animalium in Belgio Habitantium. *Acta Helvetica,* **4** : 243–270. 1 pl.

—— 1762 (ed.). *Naauwkeurige en Natuurlijke Beschrijving van de stad Aleppo* . . . 294 pp. 8 pls. Leiden.

—— 1763. *Zoophylacii Gronoviani* (fasciculus primus). 136 pp. 14 pls. Leiden.

—— 1764. —— (fasciculus secundus) 95 pp. 4 pls. Leiden.

—— 1772. Animalium Rariorium Fasciculus. Pisces. *Acta Helvetica* **7** : 43–52. 2 pls.

—— 1778 (ed.). *Caji Plinii Secundi Historiae Naturalis.* 98 pp. Leiden.

—— 1781. *Zoophylacii Gronoviani* (fasciculus tertius). 139 pp. 3 pls. Leiden.

—— 1854. *Catalogue of Fish collected and described by . . . now in the British Museum.* 196 pp. London (ed. J. E. Gray).

GRONOVIUS L. T. MS. *Lithophylacium.* An unpublished manuscript catalogue of minerals, fossils *etc.* in the Gronovius collection—now preserved in the Library of the University of Amsterdam.

GÜNTHER, A. 1859–70. *Cat. fish. Brit. Mus.* 8 vols. London.

—— 1880. *An Introduction to the Study of Fishes.* 720 pp. Edinburgh.

—— 1899. The President's Anniversary Address. *Proc. Linn. Soc. Lond.* 1898–99 : 15–38.

HASSELQUIST, F. 1757. *Iter Palaestinum* . . . 619 pp. Stockholm.

HIGGINS, L. G. 1950. The " Zoophylacium Gronovianum " 1781, and Meuschen's Index. *J. Soc. Bibl. nat. Hist.* **2** : 185–186.

INTERNATIONAL COMMISSION ON ZOOLOGICAL NOMENCLATURE. 1950. Meuschen's Index to Gronovius 1763–1781, " Zoophylacium Gronovianum." *Bull. zool. Nom.* **4** : 502–504.

—— 1954. Opinion 260. *Opin. Declar. int. Comm. zool. Nomencl.* **5** (21) : 265–280.

JORDAN, D. S. 1905. *A Guide to the Study of Fishes,* **1** : 386–427. New York.

—— 1919. *The Genera of Fishes,* **2** : 248–249.

—— & EVERMANN, B. W. 1898. *Fishes of North and Middle America. Bull. U.S. Nat. Mus.* **47**, 3313 pp.

—— & SEALE, A. 1926. Review of the Engraulidae . . . *Bull. Mus. Comp. Zool.* **67** (11) : 364.

KRAMER, W. H. 1756. *Elenchus* . . . *Animalium per Austriam* . . . *observatorum* 400 pp. Vienna.

LACÉPÈDE, B. G. 1803. *Histoire Naturelle des Poissons,* **5**, 803 pp.

LINNAEUS, C. 1745. *Öländska och Gothländska Resa* . . . 344 pp. Stockholm.

—— 1746. *Fauna Svecica* . . . *sistens Animalia Sveciae Regni.* 411 pp. Stockholm.

—— 1749. Museum Adolpho-Friderici anum (a Laurent Balk). *Amoenitates Academicae,* **1** : 54 pp.

—— 1751. *Skanska Resa* . . . 434 pp. Stockholm.

—— 1754. *Museum S.R.M. Adolphi Friderici Regis.* 96 pp. Holmiae.

—— 1756. *K. Svensk. Vet. Akad. Hand.* (1775) **16** : 34, pl. 3.

—— 1758. *Systema Naturae* . . . *Editio decima reformata.* Tom. 1 : 230–338. Holmiae.

—— 1766. —— . . . *Editio duodecima reformata.* Tom. 1 (1) : 394–532. Holmiae.

LÖNNBERG, E. 1896. Linnaean Type-specimens of . . . Fishes in the R. University of Uppsala. *Bihang K. Svenska Vet. Akad. Handlingar,* **22**, 4 : 4–45.

MEEK, S. & HILDEBRAND. 1928. Marine Fishes of Panama. *Field Mus. Nat. Hist.* (Zool. Ser.) **15**.

MEUSCHEN, F. C. 1778. *Museum Gronovianum* . . . 252 pp. Leiden.

—— 1781 (ed.). *Zoophylacium Gronovianum* (fasciculus tertius). 139 pp. 3pls. Leiden.

MURRAY, G. 1904. *History of the Collection* . . . *in the Natural History Departments of the British Museum,* **1** : 152.

NORMAN, J. R. 1934. *A systematic monograph of the Flatfishes* (*Heterosomata*), **1**, 459 pp. London.

—— 1935. Coast fishes (South Atlantic). *Rep. Discovery Exp.* **12** (1) : 20–32.

OSBECK, P. 1757. *Dagbok öfver en Ostindisk Resa åren* 1750–52 . . . 376 pp. Stockholm.

PINTO, S. Y. 1954. Redescricão de *Blennius cristatus. Bol. Inst. Oceanogr.* Sao Paulo, **5** (1) : 213–223.

RAUWOLF, L. 1583. *L. Rauwolfen* . . . *Aigentliche Beschriebung der Raiss, so er vor diser Zeit gegen Auffgang inn die Morgenländer, fürnemlich Syriam, Judaeam, Arabiam* . . . vollracht 514 pp. Langingen.

REGAN, C. T. 1904. A Monograph of the fishes of the family Loricariidae. *Trans. zool. Soc. Lond.* : 265–280.

—— 1905. A revision of the fishes of the South American Cichlid genera, *Creacara, Batrachops and Crenicichla. Proc. zool. Soc. Lond.* : 265–280.

—— 1908. A revision of the sharks of the Family *Orectolobidae. Ibid.* : 347–364.

—— 1914. A synopsis of the fishes of the Family Macrorhamphosidae. *Ann. Mag. nat. Hist.* (8) **13** : 17–21.

REGAN, C. T. 1915. A collection of fishes from Lagos. *Ibid.* (8) **15** : 125–126.

RUYSCH, F. 1710. *Thesaurus animalium.* 40 pp. Amsterdam.

SCHAEFFER, J. C. 1761. *Piscium Bavarico-Ratisbonensium pentas.* 82 pp. Ratisbon.

SEBA, A. 1758. *Locupletissimi rerum naturalium thesauri accurata descriptio* . . . **3**, 212 pp. Amsterdam.

SHAW, G. 1804. *General Zoology* (Pisces) **5**, 463 pp. London.

SMITH, J. E. 1821. *A Selection of the Correspondence of Linnaeus and other Naturalists from the Original Manuscripts.* 2 vols. 10 pls. London.

SMITH, J. L. B. 1949. *Sea Fishes of Southern Africa.* 550 pp.

TOMLIN, J. R. 1942. Shell Sales IV—Meuschen. *Proc. Malac. Soc. Lond.* **25** : 96–97.

VALENTYN, F. 1726. *Oud en niew Oost-Indiën.* **3** (1). 582 pp. Amsterdam.

WALBAUM, J. J. 1792 (ed.). *Petri Artedi renovati* . . . *Ichthyologica,* **3**. 723 pp. Grypeswaldiae.

WHITLEY, G. P. 1929. Names of Fishes in Meuschen's Index to the Zoophylacium Gronovianum. *Rec. Aust. Mus.* **17** : 297–307.

WHEELER, A. C. (*in* Palmer, G. & Wheeler, A. C.). 1955. Further notes on the genus *Gobiodes*. *Ann. Mag. nat. Hist.* (12) **8** : 67–68.

—— 1955*b*. A preliminary revision of the fishes of the genus *Aulostomus*. *Ibid.* (12) **8** : 613–623.

—— 1956. The Zoophylacium of Laurens Theodore Gronovius. *J. Soc. Bibl. nat. Hist.* **3** : 152–157.

—— 1956*b*. The type species of *Mastacembelus* and the second edition of Russell's " Natural History of Aleppo ". *Bull. Raffles Mus.* **27** : 91–92.

WILLUGHBY, F. 1686. . . . *de Historia Piscium* . . . 373 pp. Oxonii.

BRITISH MUSEUM 24 JUL 1958 NATURAL HISTORY

PLATE 26

Laurens Gronovius and his sons Johannes and Samuel ; from a portrait by Isaac la Fargue van Nieuwland (*ca.* 1774), now in the Stedelijk Museum (Lakenhal), Leiden, and published by permission of the Director, Mr. J. N. van Wessem.

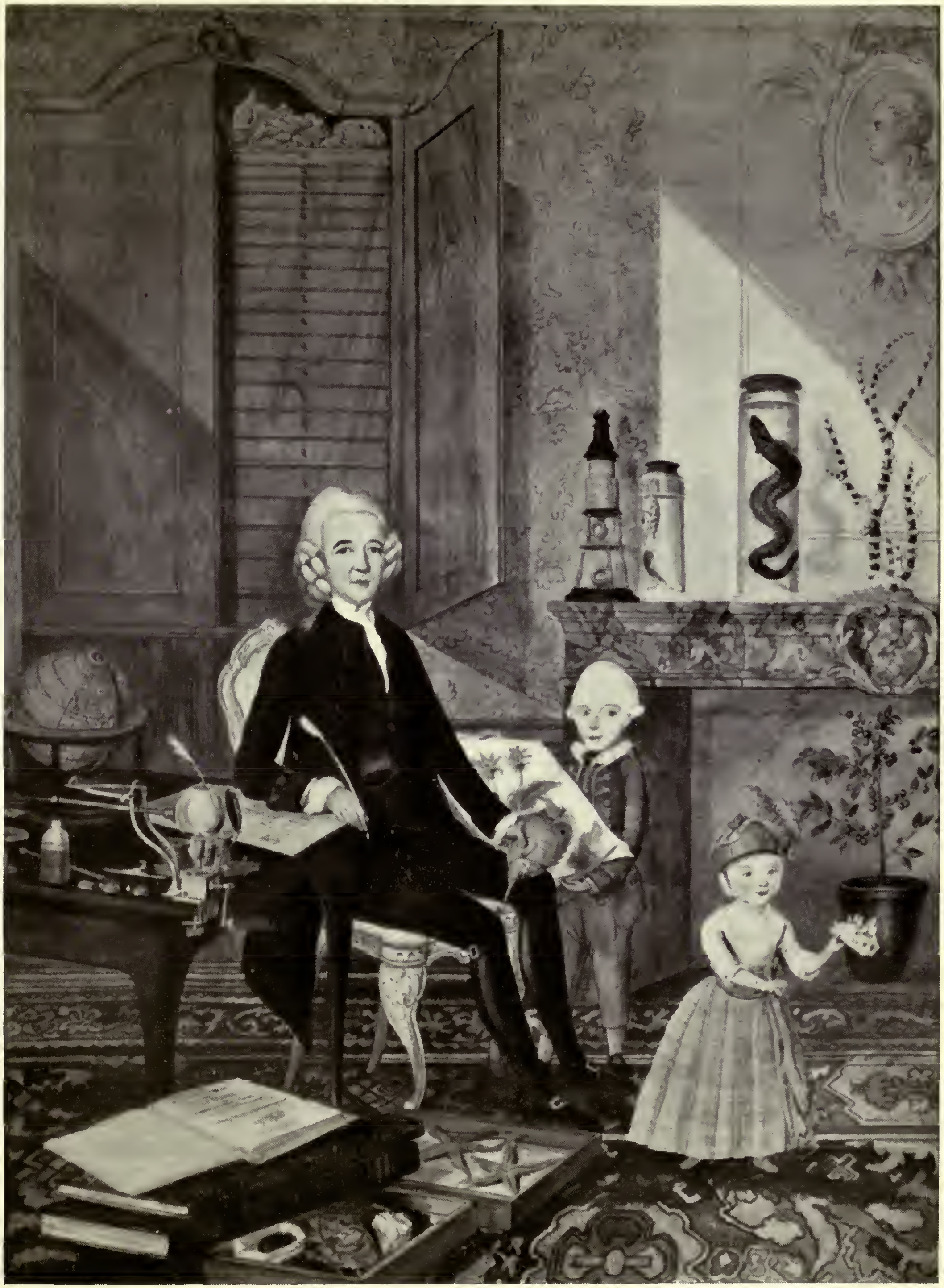
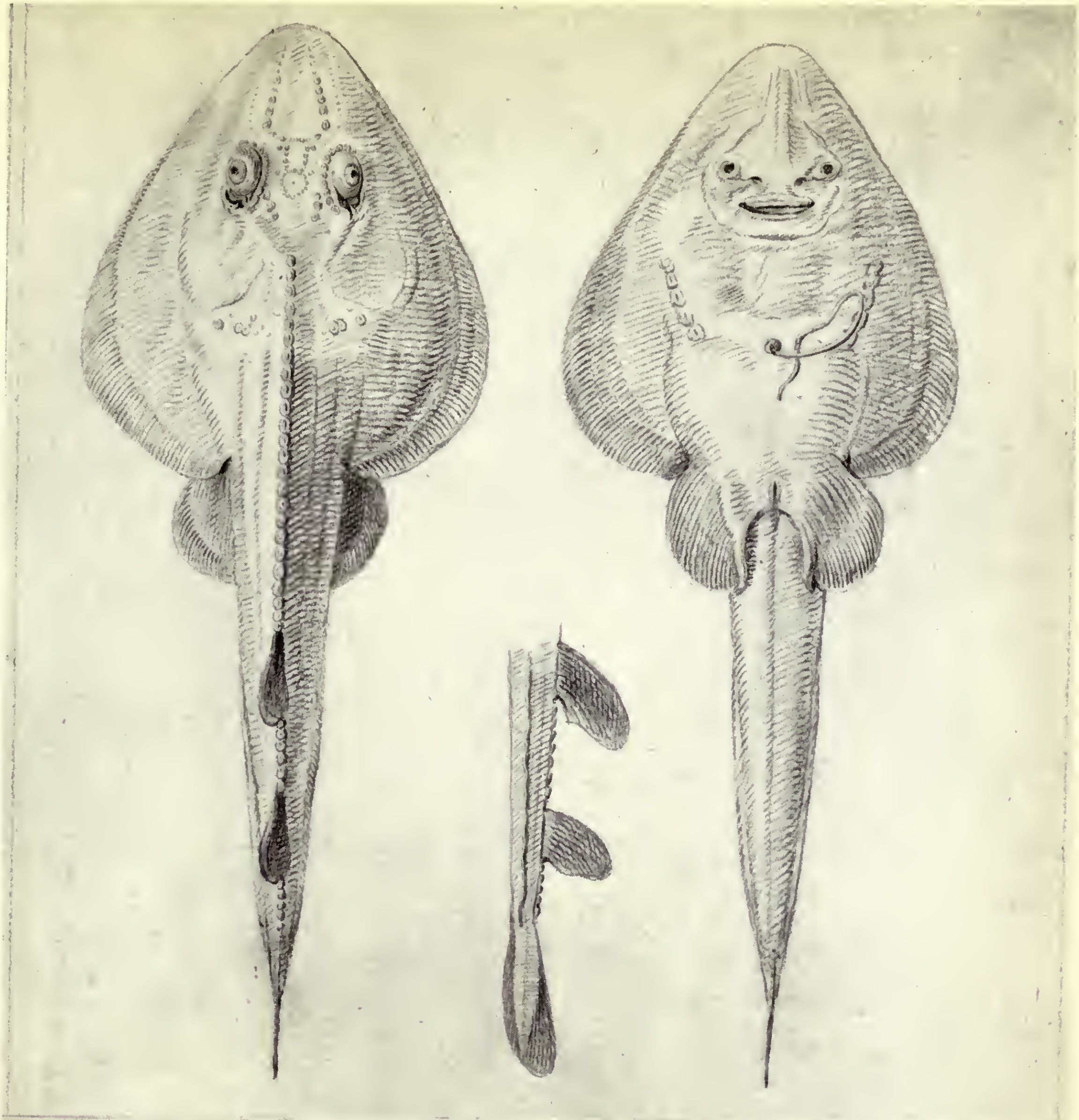


PLATE 27

The illustration and description of *Raja rhinobatus* in the Gronovius manuscript.



V Raja Rhinobatus +

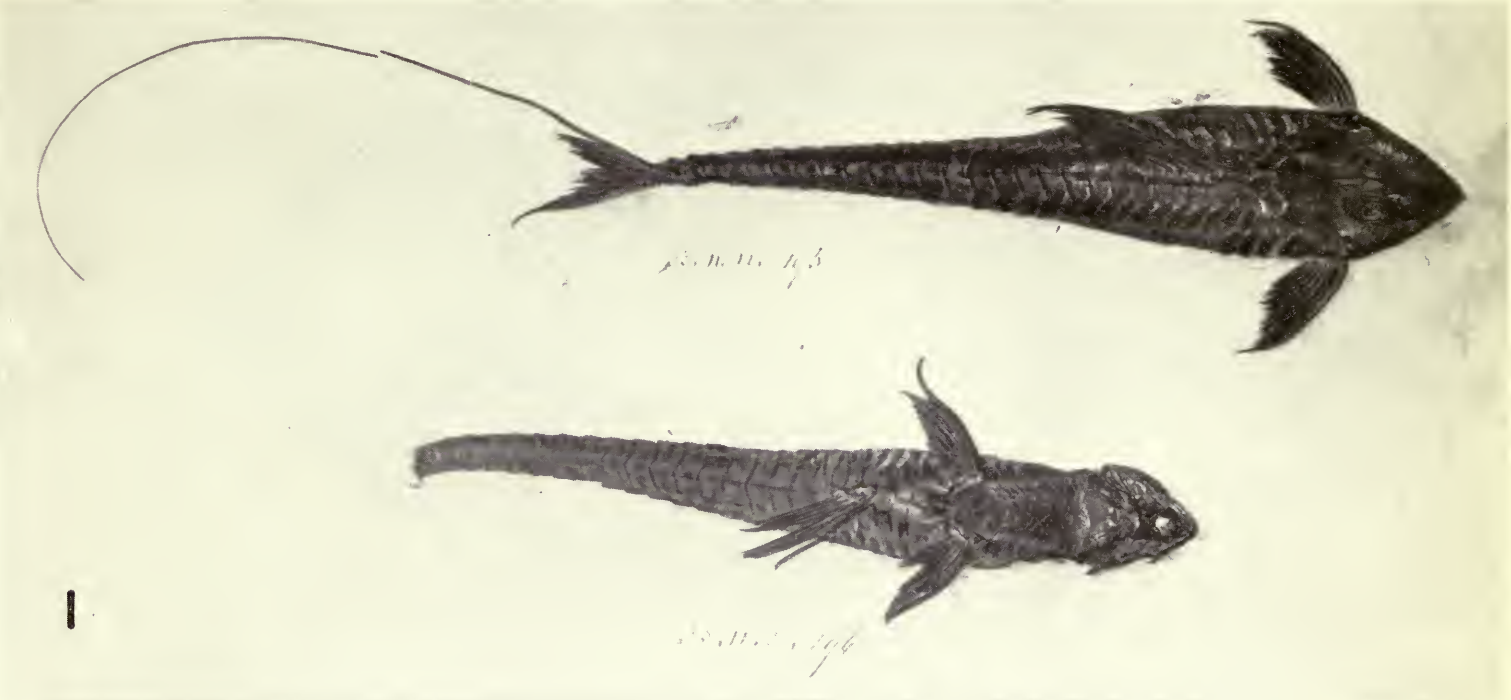
Raja rostro acuminato: alis subangulosis: cauda crassa dilatata praelonga: dorso
caudaque serie solitaria aculeorum.
Rhinobatus sive Squatino raja. Fab. Columna Ekphras. p. 101. tab. 303.

Habitat in Mari Mediterraneo.
Habetur pro Cithara vel κίθαρος Aristotelis a Columna et Planco.
Discrepat a Leucobato alis angustioribus: rostro longiore acutiore: Cauda multo
longiore, latiore: et pinnis ventralibus remotioribus ab alis. Color dorsi subflavus.
Cutis partis superioris scabra.

PLATE 28

Fig. 1. *Loricaria cataphracta* L.

Fig. 2. *Gonorynchus gonorhynchus* (L.). Holotype.



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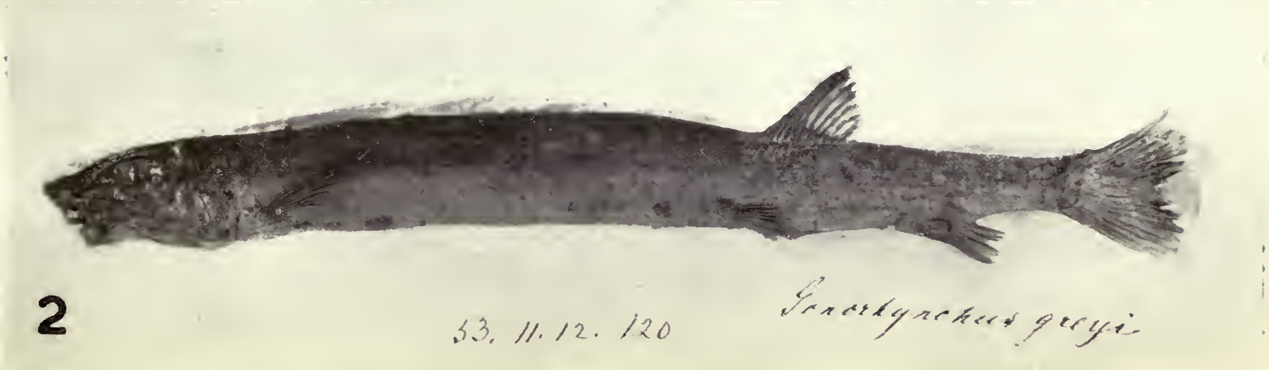


2

53. 11. 12. 120
Gonorhynchus greyi

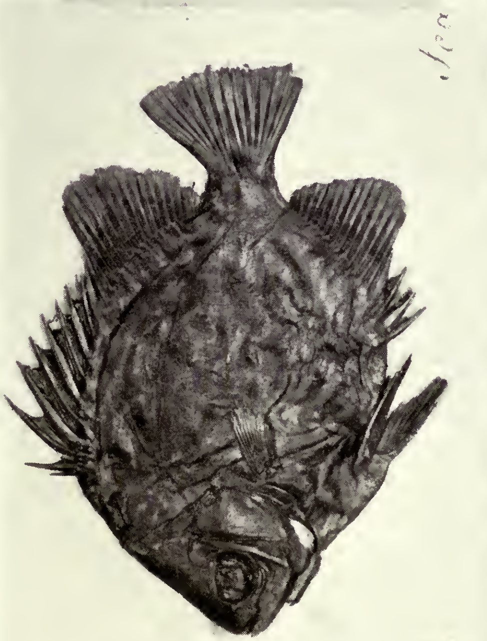
PLATE 29

Fig. 1. *Scatophagus argus* (L.).

Fig. 2. *Liparis liparis* (L.). Holotype.

Fig. 3. *Gasteropelecus sternicla* (L.). Holotype.

Fig. 4. *Blennius cristatus* L. Holotype.



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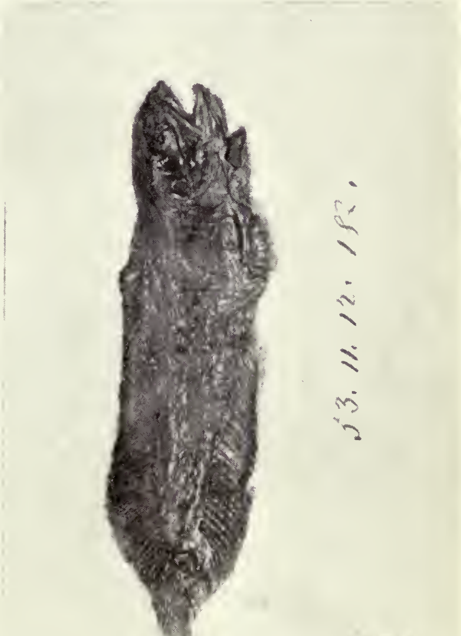

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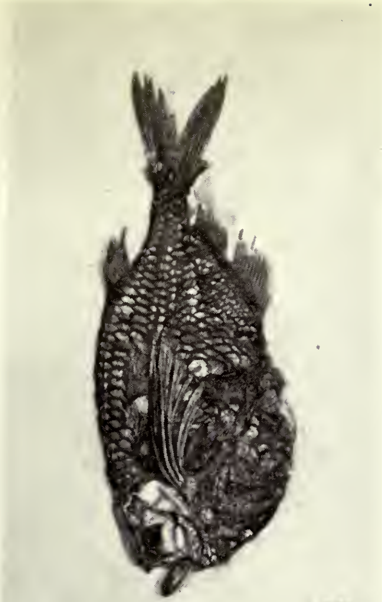

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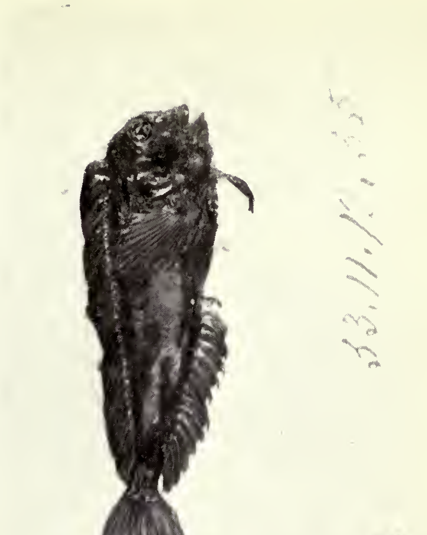
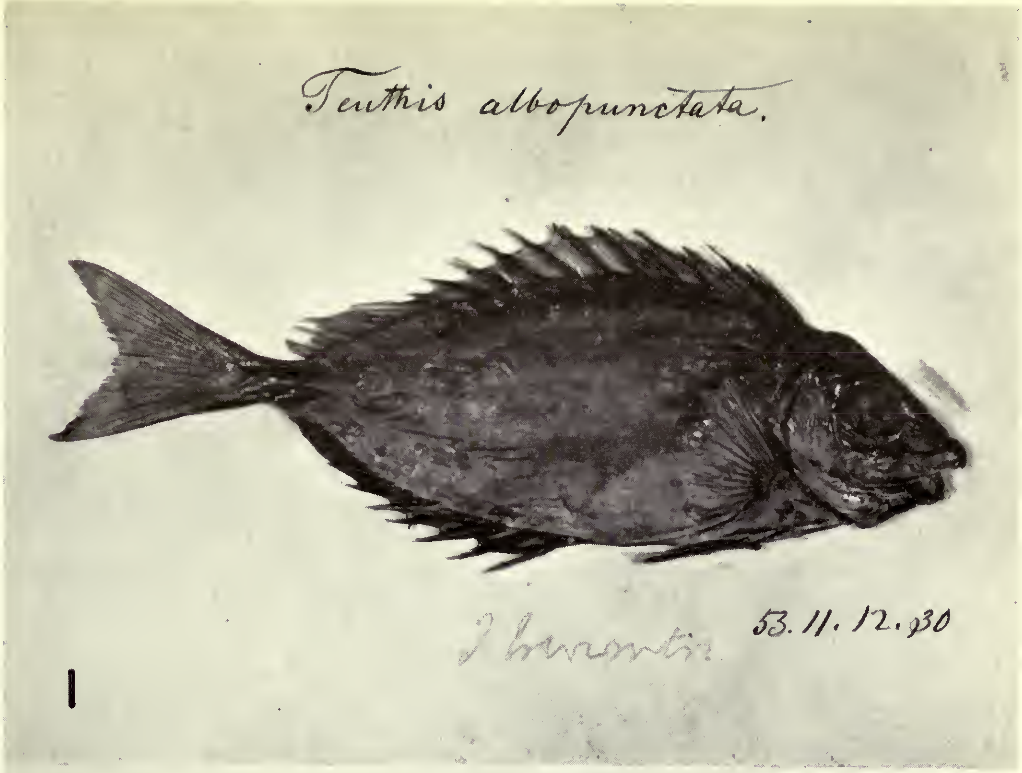


4

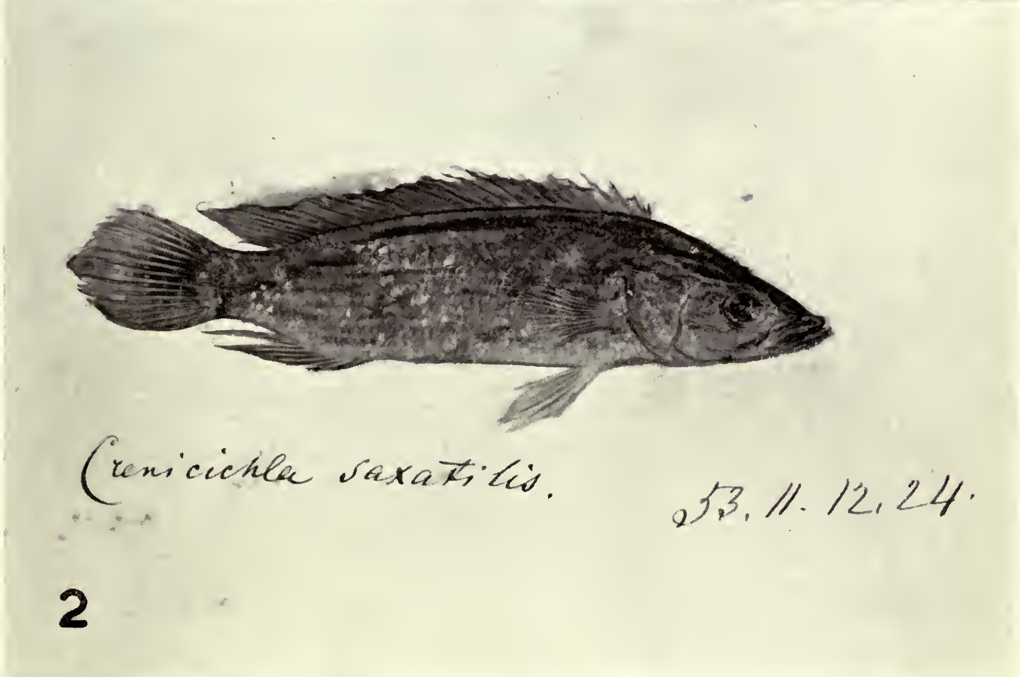
PLATE 30

Fig. 1. *Siganus javus* (L.). Holotype.

Fig. 2. *Crenicichla saxatilis* (L.). Holotype.


Teuthis albopunctata.
53.11.12.30

1


Crenicichla saxatilis.
53.11.12.24.

2

PLATE 31

Acanthurus hepatus (L.). Holotype.

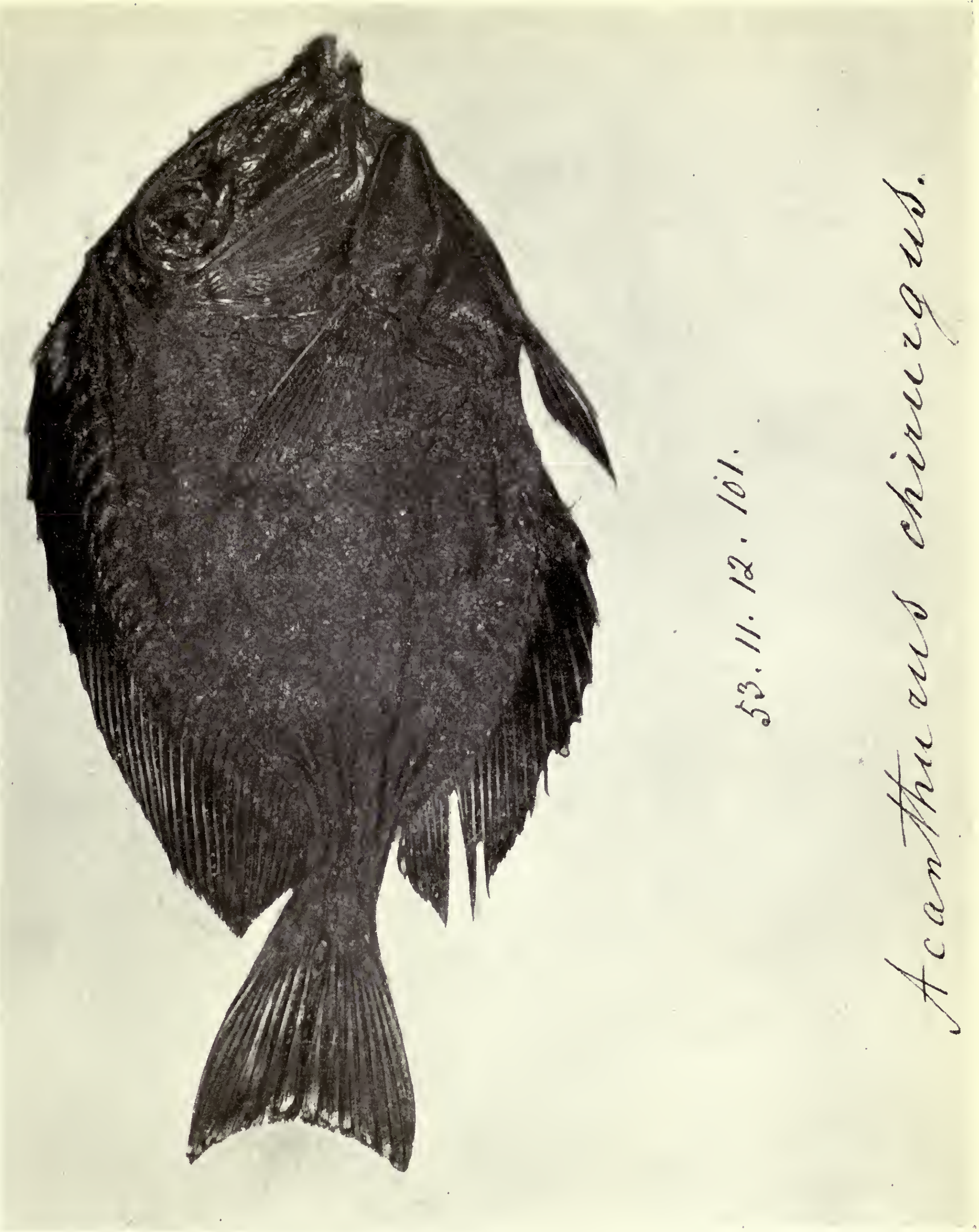
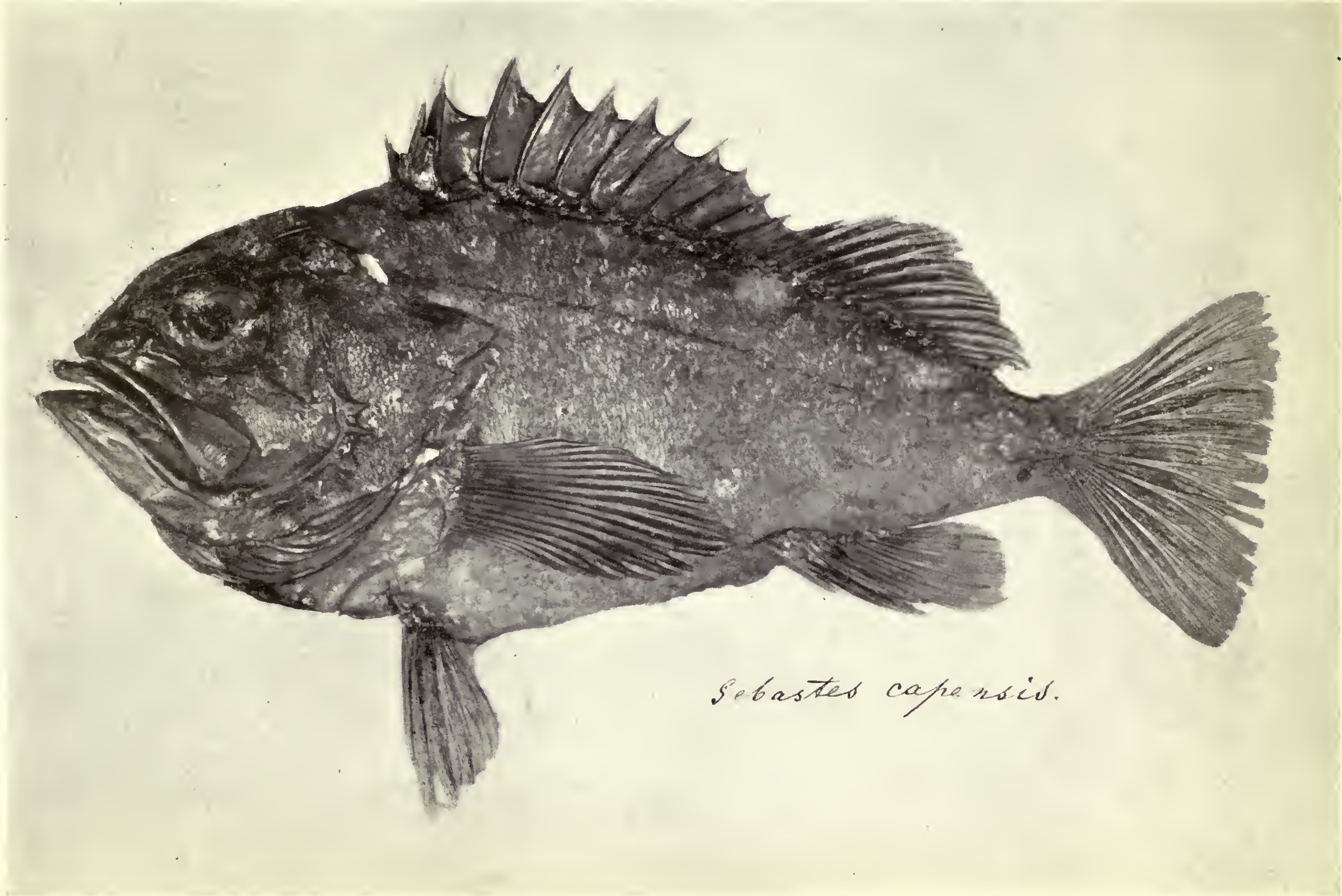

53. 11. 12. 101.
Acanthurus chirurgus.

PLATE 32

Sebastichthys capensis (Gmelin). Holotype.



Sebastes capensis.

PLATE 33

Congiopodus torvus (Gronovius). Holotype.

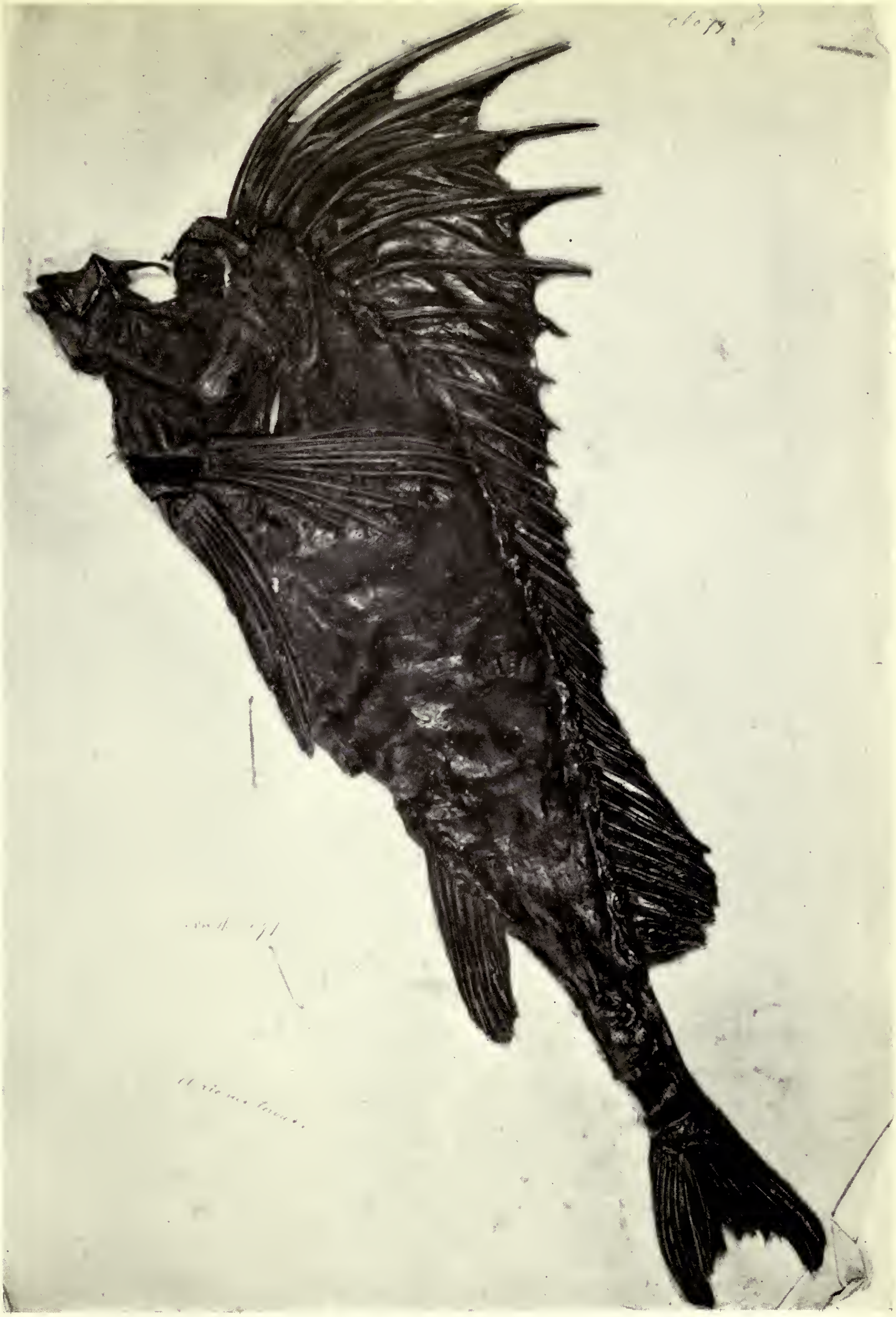
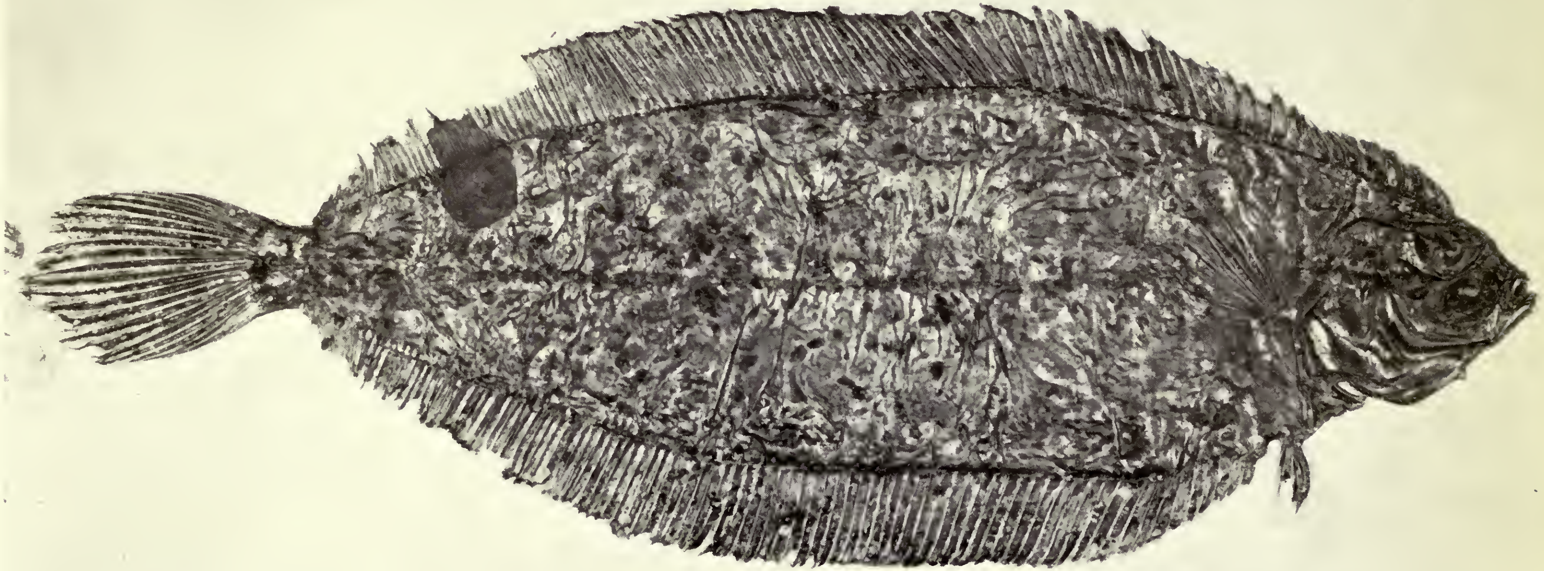


PLATE 34

Glyptocephalus cynoglossus (L.). Holotype.



Pleuronectes cynoglossus.

BRITISH MUSEUM
24 JUL 1958
NATURAL HISTORY

B. M.A.O.

SOME EIGHTEENTH CENTURY BIRD PAINTINGS IN THE LIBRARY OF SIR JOSEPH BANKS (1743-1820)

AVERIL LYSAGHT

BRITISH MUSEUM NATURAL HISTORY

BULLETIN OF
THE BRITISH MUSEUM (NATURAL HISTORY)
HISTORICAL SERIES Vol. 1, No. 6
LONDON: 1959

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BY

AVERIL LYSAGHT

Pp. 251–371 ; *Plates* 35–37

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BRITISH MUSEUM NATURAL HISTORY

SOME EIGHTEENTH CENTURY BIRD PAINTINGS IN THE LIBRARY OF SIR JOSEPH BANKS

By AVERIL LYSAGHT

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1. INTRODUCTION

THIS study is an account of a number of the bird paintings, many of them still unpublished, which were executed for Sir Joseph Banks by various naturalists and artists in the latter part of the eighteenth century, particularly those connected with the voyages of Captain Cook. As a result of the primitive methods used in preserving bird skins at that time travellers' specimens tended to deteriorate, especially on long sea voyages, so that the drawings of newly-discovered species were sometimes the only basis of the published descriptions. This is made clear in Latham's *General Synopsis of Birds* (1781–85) which was largely used by Gmelin in the new and greatly enlarged edition of the *Systema Naturae* 1788–89, where he gave scientific binomials to a great number of new species. It thus happens that some of these drawings from Banks's collection are in fact the types of the species, and that the localities noted on them are the type localities. Their significance is further increased on account of the profound alterations in habitat that have occurred since the eighteenth century in many of the islands visited by Cook, with the result that some of the birds discovered at that time have now become greatly reduced in numbers, if not extinct.* They are also valuable in that together with the descriptions made by Cook's naturalists they constitute the first comprehensive records of petrels and other oceanic birds from the then almost unknown seas of the southern hemisphere.

The importance of the principal collections of bird drawings made on Cook's voyages was recognized by Bowdler Sharpe in the *History of the Collections* (1906). Earlier workers include Banks's contemporaries John Latham and Thomas Pennant; Heinrich Kuhl, a brilliant young zoologist who died in Java in 1821 at the age of twenty-four; the later nineteenth century ornithologists Lionel Wiglesworth and Osbert Salvin; and, more recently, Gregory Mathews, Tom Iredale and Dr. Stresemann. Many others have made less extensive use of the material.

Owing to the scattered nature of earlier publications on the Banksian drawings, the re-discovery of some folios that have remained unpublished, and the increase in our knowledge of many southern and Polynesian species as a result of the Whitney expedition, it seems opportune to attempt some re-assessment of the drawings noted above. These do not include all the bird drawings in the Banksian collection but it is hoped that some others of particular interest may be dealt with in a later paper.

I should like to express first of all my indebtedness to the late Sir Norman Kinnear who originally suggested that I should attempt this work, and without whose kindness and co-operation it could never have been carried out; to the Hakluyt Society who gave me a grant and who have assisted generously with expenses incurred in connection with the Cook collections; to the staff of the Bird Room of the British Museum (Natural History); I have much pleasure also in thanking the staffs of the libraries of the British Museum (Natural History); Mr. A. E. Popham and Mr. Croft-Murray very generously gave me every facility for examining the Banksian collection of drawings now in the Print Room, British Museum; Dr. G. C. A. Junge helped me to trace birds from Cook's expeditions that are still in the Rijksmuseum van Natuurlijke Historie at Leiden; and Professor Berlioz gave me every facility for examining the Commerson-Sonnerat MSS. in the Muséum

---

* Mr. Greenway's most interesting book (1958) on the factors concerned with the extinction or near-extinction of many of the birds mentioned in these pages appeared when this paper was already in proof and it was not possible to include references to it.

National d'Histoire Naturelle. My thanks are also due to Dr. A. C. Stephen, of the Royal Scottish Museum, and to Mr. Finlayson, Keeper of Manuscripts in the University of Edinburgh, in connection with the identification of the Cook drawings in that city ; to Dr. John Evans, Director of the Australian Museum, and to Miss Mander Jones of the Mitchell Library of Sydney for their co-operation over the Cook drawings there ; to Miss Margaret Hibbard for calling my attention to the existence of Banks's Newfoundland notebook in the McGill University Library, and to Mr. Richard Pennington for permission to use it. Many other friends and colleagues, particularly the late Captain C. H. B. Grant, Dr. A. Wetmore, Miss Lindsay McDougall, Dr. J. S. Richardson, Mr. W. T. Stearn, Professor Joseph Ewan, Dr. R. A. Falla and Mr. Graham Turbott, have helped me and stimulated my work in various ways. My special thanks are due to Dr. W. R. P. Bourne for helping me with the notes on petrels, and for having read the page proofs.

2. MATERIAL AND SOURCES

The paintings listed and discussed in the following paper are for the most part the work of a number of eighteenth century professional and amateur artists employed by Banks ; in addition there are some he seems to have purchased. Some of the larger collections were indexed as a whole in the printed catalogue of Banks's library prepared by Jonas Dryander (1748–1810) who became librarian after the death of Solander in 1782. Dryander's catalogue consisted of five volumes which appeared at intervals from 1796 to 1800. A second edition, with MS. additions to the original text, was prepared but never actually published ; it is now in the British Museum (Natural History). The first edition was a most useful work and was greatly in demand at the time of publication ; the volumes concerned with botany, zoology mineralogy were arranged under an elaborate series of headings, historical, geographical, systematic, bibliographical and so on ; a number of collections of plant and animal drawings were briefly catalogued (**2** : 15–17 ; **3** : 63–69) and include those of Georg Forster (Cook's second voyage), William Ellis and William Webber (Cook's third voyage). The work of minor contributors is not mentioned, nor is that of Sydney Parkinson, a member of Banks's staff and the principal natural history painter on the first of Cook's voyages.

Dryander also compiled a detailed MS. catalogue, arranged systematically, of the animal drawings in Banks's library which were apparently made generally available to visiting scientists, a few being published at the time, with or without acknowledgment.

The Banksian library ultimately passed to the British Museum but when in 1880 the Natural History Collections were transferred to South Kensington a number of Banksian natural history drawings were overlooked and left behind in the Department of MSS. In 1913 these were nearly all transferred to the Print Room but since the artists concerned were of little account in the bright galaxy of stars already there they were practically forgotten. So when Bowdler Sharpe and his colleagues wrote their magnificent *Catalogue of Birds in the British Museum* (1874–98, 27 vols.)

their rich bibliographical material included many references to the drawings by Georg Forster and W. Ellis, to a large proportion of those by Sydney Parkinson in this Museum, but not to those by Parkinson, Webber and their contemporaries, that had remained in the Print Room. In the *History of the Collections contained in the Natural History Departments of the British Museum*, **2** (1906) Sharpe published descriptions of the bird paintings by Parkinson, Forster and Ellis, but again made no reference to the work of Webber, nor to the Parkinson drawings that had been left in Bloomsbury, neither does he appear to have known of the Dryander MS. Catalogue, nor of the Solander and other contemporary MSS. in which the animals collected on Cook's first voyage and painted by Parkinson and his fellow artists are described. According to Gregory Mathews (*Birds of Australia*, 1912–13, **2** : 3) these descriptions had been overlooked after Gray had worked on them in 1871 and he states that they were not consulted either by Salvin or Godman in their works on petrels. Salvin had, however, known of some of the Solander MSS. as, when he is discussing Parkinson's drawings of petrels (1875 : 223), he says " They all bear the signature of Sydney Parkinson [this is incorrect] ; the date when, and frequently the latitude and longitude where they were made, are also written upon them. This much is entered in ink ; but besides these marks they have notes in pencil inscribed upon them in another handwriting, and evidently by someone who was present at the time the sketches were executed. These pencil-notes always include a generic and specific name, which correspond with those employed in Solander's MS. to which I have had access." On p. 226 he makes it clear that some of the MSS. were not available and that the MS. notes he quotes are from Solander's interleaved twelfth edition of the *Systema Naturae*.

Mathews did a great service to zoologists by searching for more Solander MSS. in the British Museum and finally found a large bundle of these precious historical documents labelled " Copies ". These were fair copies, prepared for publication, of Solander's systematic work on the animals collected on the first of Cook's voyages. About this time the Dryander MS. catalogue of drawings was also brought out of obscurity ; it is indexed for the first time in the *Catalogue of the Library, British Museum (Natural History)*, **6**, 1922.

Much of the less-known material in the following paper was found as a result of Dryander's careful work. Thus a successful search for the Webber drawings resulted from his entry on p. 17 of vol. 2 of the *Cat. Bibl. Hist.-Nat. J. Banks* " Icones pictae Avium et Piscium 46, quas in Cookii ultimo itinere delineavit Gulielmus Webber ". This led to another discovery. Mr. Theed Pearse of Vancouver, who is working at a history of the ornithology of that region, visited the Print Room to see the Webber drawings and noticed an open volume on a table with unsigned drawings from Cook's second voyage. As he was about to leave this country he was unable to work at these drawings himself and told the present writer of them. They were in a bound folio with a large number of other drawings of much interest including those by Paillou of birds that had been brought back from Newfoundland and Labrador by Banks in 1766. This in turn led to some drawings by Parkinson of some other Newfoundland birds in another volume, and to a comparison of the second voyage drawings by an unknown artist with those in the Royal Scottish

Museum and with a similar series in the Australian Museum, Sydney. Many of these drawings are noted in Dryander's MS. catalogue, and some of his notes on localities and authorship have been very useful.

3. BIOGRAPHICAL NOTES

Banks and Latham are already well known to most ornithologists, and a good deal of information about some of the other naturalists and artists mentioned below is available in Mrs. E. G. Allen's delightful *History of North American Ornithology* (1951) which includes a useful bibliography. The following notes are therefore not intended to be comprehensive; in addition to brief biographical statements they contain only some general information about the whereabouts of some MSS. concerned with the less-known voyages, with some details of itineraries that bear directly on type localities, and on matters connected with the attributions of some of the unsigned paintings. William Anderson is dealt with in greater length than the other people, partly because the paintings in the Royal Scottish Museum appear to have been in his possession, and partly because it is hoped that the publication of some hitherto unknown details of his life in Scotland may lead to the discovery of his missing diary of Captain Cook's second voyage round the world, which may well be in private hands, or in some Scottish library.

(*a*) Sir Joseph Banks, F.R.S., 1743–1820

Banks went on his first voyage as a serious naturalist in 1766, when twenty-three years of age, sailing with his friend Lieutenant Constantine Phipps, afterwards Lord Mulgrave, on the *Niger* commanded by Captain Thomas Adams who was concerned with the fisheries of Newfoundland and Labrador. Banks's diary of this journey is now in Adelaide; a transcript, his botanical notebook, and drawings by Ehret of some of the plants collected, are in the Botany Library, British Museum (Natural History), the drawings of birds by Parkinson and Paillou are in the Print Room, British Museum, and many sheets of his zoological notes are in the McGill University Library, Montreal. In an entry in the diary for 2nd August, 1766, Banks complains that he has been unable to work during July on account of " a fever, which to my great misfortune confined me the greatest part of that month to the ship . . . [My Servant] shot several Birds for me, but my situation far too weak and dispirited by my Illness, to Examine systematically: anything that was brought has made my Bird Tub a chaos, of which I cannot give so good an account as I could wish ". Some of these birds were, however, stuffed and in 1767 and 1768 were painted by Parkinson; paintings of others by Paillou are undated. The paintings, Banks's notes and the unpublished lists of skins in his collection, show that he collected about seventy species of birds in his five and a half months visit to Newfoundland and Labrador (see appendix A), and it is the first comprehensive collection from that part of Canada. Captain George Cartwright, who visited Labrador in 1770 and lived there for nearly sixteen years, is usually regarded as the first naturalist to have recorded the birds of that region.

Although Banks accompanied Captain Cook on only the first of his three major voyages he acquired most of the natural history drawings from all of them, and also a large quantity of specimens, and thus owned an invaluable collection from the newly-discovered countries of the Pacific as well as from the seas of the Arctic and Antarctic regions. He was exceedingly generous in allowing free access to these collections and contemporary zoologists as well as botanists owe him more than can easily be assessed. Pennant, for instance, made use of his unpublished Newfoundland diary, borrowed his birds, and had engravings made from the paintings by Parkinson and Paillou: Kuhl worked on some of the drawings of the petrels collected on Cook's voyages; the paintings of fishes were studied and in some cases published by Bloch and Schneider; Latham, more punctilious in his thanks than Pennant, used both drawings and skins of many of the birds; and Fabricius worked extensively on the insects. So, generally speaking, a certain amount of the work of the naturalists and artists employed by Banks did filter here and there into print but it is impossible not to regret that the comprehensive studies by Solander on the great bulk of the Banksian material remained in MS. and that his names for the newly-discovered plants and animals were allowed to lapse, or were published by other workers who thus became the recognized authors of the species concerned.

A very much abridged edition of Bank's *Endeavour* diary was published by J. D. Hooker in 1896. A carefully annotated edition of the original MS. is now being printed by the Mitchell Library and should be available shortly.

(*b*) JOHN LATHAM, M.D., 1740–1837

Latham was three years older than Banks. His *General Synopsis of Birds* began to appear in 1781 and was completed in 1785, with a two-volume supplement following in 1787 and 1802. His *Index Ornithologicus* was published in 1790, with a supplement twelve years later, and the *General History of Birds* in 1821–28.

The *General Synopsis of Birds* is of special importance to ornithologists as many of the specimens new to science which were collected on Cook's voyages were first described in it and then given valid binomials by Gmelin in 1788–89 in his revision of the *Systema Naturae*. Gmelin, in fact, on many occasions simply -translated Latham's account of a species into Latin, and by referring to the *General Synopsis* it is often possible to find out whether Latham based his description on drawings or specimens, and so to trace the type locality.

Latham freely acknowledged his debt to Banks who is said to have handsomely given him access to all his collections and allowed him to copy some of the drawings. Latham actually etched all his own plates, and most of them are signed with the initial L. He was punctilious in giving acknowledgment to the writers of the MSS. quoted by him and often refers to Reinhold Forster and William Anderson (q.v.).

(*c*) DANIEL SOLANDER, 1736–82

In addition to what we already know of Solander, an unpublished translation by Miss Nora Gourlie of the commemorative lecture on him by R. E. Fries (1940) is now available in the British Museum (Natural History). His most important MSS.

are listed in the *Cat. Library Brit. Mus.* (*Nat. Hist.*) **5**, 1915, where there are twenty-one entries under his name. Amongst these is a fair copy of his detailed descriptions of the animals collected on Cook's first voyage which include fifty-four species of birds, most of them oceanic species. Together with Parkinson's paintings these constitute the earliest comprehensive record of an ornithological transect of both the Atlantic and Pacific oceans. Many of these descriptions were first published by Gregory Mathews in 1912, and briefly discussed by Iredale in 1913.

(*d*) SYDNEY PARKINSON, 1745–71

An account of this gifted young man has already appeared (Sawyer, 1950) and further details of his life and work are given in H. C. Cameron's book on Banks (1952) and in the Hakluyt Society's edition of Cook's journals (**1**, 1955). A large number of Parkinson's natural history drawings are in the Print Room at Bloomsbury and in the Botanical and Zoological Departments at South Kensington; his sketchbook and a number of other drawings are in the Manuscript Room at Bloomsbury, others are in private hands. Some of his paintings were used by Pennant, and lithographs of 319 of his drawings, with determinations by James Britten, were published by the British Museum (1900–05). Most of his drawings have, however, remained unpublished, and those in the Print Room have not hitherto been properly examined. This was perhaps partly due to the fact that most of them were pasted on to folios so that the notes on localities were not available. It was only when Paillou's paintings of the Newfoundland birds were found in the Print Room that it was obvious that the Parkinson drawings there should be carefully checked. An old register showed that Parkinson had also painted birds from Newfoundland, and Mr. Croft-Murray kindly allowed the paintings to be lifted from their mounts so that Banks's notes could be read. In the present study the only Parkinson drawings to be catalogued are those of birds collected by Banks in Newfoundland and Labrador, and by Banks and Solander on Cook's voyage in the *Endeavour*.

(*e*) PETER PAILLOU, n.d.

Little is known of this painter who worked both for Banks and Pennant. He is frequently confused with a miniaturist of the same name who may have been his son and who is said to have lived in Islington and exhibited at the Royal Academy from 1786 to 1800: he was apparently still working in Glasgow in 1820. The earliest surviving work of the older man appears to be a large series of natural history drawings executed for Taylor White, F.R.S., of Wallingwells, Notts, an enthusiatic naturalist and collector. White refers to specimens of North American birds being collected for him by his " learned friend Hodgkinson Banks " but it has not been possible to find any biographical details of this man. His collection of drawings is now in the Blacker Library, McGill University, Montreal and a list of them has been given by Casey Wood who states (1931 : 131–132, 504) that the earliest folio of paintings by Paillou is dated 1720. There are several folios of later works by him and Charles Collins. It seems probable that it was this Peter Paillou who was a member of the Society of Artists and exhibited " A Horned Owl (from Peru) in Feathers " which was mentioned in their catalogue of an exhibition of 1778. He was still active about 1784 as the splendid frontispiece of Pennant's *Arctic Zoology* is his work. It would appear that he died soon after that. In his *Literary Life* (1793) Pennant states: "About the year 1761 I began my *British Zoology*, which, when completed, consisted of cxxxii plates on imperial paper. . . . The painter was Mr. *Peter Pallou* [*sic* !], an excellent artist, but too fond of giving gaudy colours to his subjects. He painted, for my hall, at *Downing*, several pictures of birds and animals, attended with suitable landscapes. . . . all have their merit, but occasion me to lament his conviviality, which affected his circumstances and abridged his days".

(*f*) JOHANN REINHOLD FORSTER, 1729–98, AND HIS SON JOHANN GEORG ADAM FORSTER, 1754–94

Reinhold Forster's general account of the scientific results of Cook's second voyage round the world (1778) was a useful contribution to knowledge but unfortunately most of his detailed descriptions of the animals collected were not published until 1844 when they were edited by Lichtenstein and appeared with the title *Descriptiones Animalium quae in itinere ad maris australis terras per annos* 1772 1773 *et* 1774 *suscepto collegit observavit et delineavit Joannes Reinholdus Forster.* These descriptions are of considerable importance, more especially since in addition to the dates and localities Forster usually noted whether or not there was a drawing by Georg of the animal in question. There is an annotated MS. list of the unpublished drawings in the British Museum (Natural History), with some notes on localities, the scale of the drawings etc., and although this list is in an unknown hand the details in it suggest that it, or a similar list, must have been dictated by Reinhold Forster. Shortly after the return of the expedition he published an account of the penguins that had been collected, and a memoir on albatrosses.

Georg Forster was only eighteen when he sailed on the *Resolution* and only a fragment of the diary he kept on the voyage now remains, but it contains some interesting observations on oceanic birds. Banks was always generous to him, in spite of his quarrels with Reinhold who fell out with everyone, and bought his drawings for £400. They are a most interesting collection, and include a particularly fine series of paintings of fishes. A few rather poor copies of the bird paintings are in the Australian Museum, Sydney. The fate of a set of copies by a professional artist which were made for presentation to King George III is unknown; owing to a dispute between the Forsters and Lord Sandwich the presentation was never actually made. It is just possible that four paintings by Gertrude Metz of birds collected on the second voyage were part of that set (see p. 348).

(*g*) WILLIAM ANDERSON, 1750–78

It is a pleasure to acknowledge the kind help I have received from Dr. J. S. Richardson of North Berwick in tracing the family history of this young Scottish surgeon. He was highly thought of by Cook and acted as official naturalist on the third voyage.

William was the second son of Robert Anderson, a schoolmaster of North Berwick, and was born on 28th December, 1750. He studied in the Medical Faculty at Edinburgh University from 1766 to 1769, and passed the examinations of the Royal College of Surgeons in England in 1768 and 1770. He sailed as surgeon's chief mate on the second of Cook's voyages, and probably benefited considerably from working with the Forsters. He was chief surgeon as well as naturalist on the third voyage from which he did not return. He kept a diary on the second voyage, and had it with him on the third but its fate is unknown. Two volumes of his diary of the third voyage are in the Public Record Office; a third has been lost. His natural history notebooks are in the British Museum (Natural History). As far as we know at present, no papers of his are in public collections in Scotland with the exception of a chart in his handwriting which is bound at the end of a volume of bird paintings from the second voyage, now in the Royal Scottish Museum. These paintings are the work of an amateur, and companion sets by the same man are in the Print Room, British Museum, and in the Mitchell Library, Sydney. The Scottish set was sent to Sir Norman Kinnear for identification some years ago when the existence of the companion sets was unknown, and it then seemed quite probable that the artist was William Anderson. This supposition was based on the fact that Anderson was connected with Edinburgh University, and that the chart mentioned above was a copy of one by Georg Forster showing the track of the *Resolution* but with the place names written in Anderson's hand. In his will Anderson left his natural curiosities to Banks, but most of his belongings to his sisters Betty and Rabinah, and to his uncle William Melvill who was the tenant of the farm North Berwick Mains until the end of 1776 when he returned to Fife. Anderson's family was befriended, according to a letter to Banks from Lord Sandwich, then First Lord of the Admiralty, by a Mr. Dempster who saw that they received payment for the use of William's papers. This was almost certainly George Dempster, one of Boswell's closest Scottish friends, and M.P. for Fife for about thirty years.

The bird paintings and the chart were given to Edinburgh University by Professor Alexander Monro (*secundus*) who had taught Anderson anatomy and surgery. The inscription on the title page is as follows: "Thirty-eight coloured Drawings of Birds of the Southern Hemisphere executed from the Life, in the course of Captain Cook's Second Voyage. They are the Figures of thirty-eight different Species, which belong to the following Orders of Linnaeus . . . . Presented to the Museum of the University by Dr. Alexander Monro Professor of Anatomy." Mr. C. P. Finlayson, Keeper of MSS., University of Edinburgh Library, tells me that the writing is that of Professor John Walker, who was Keeper of the University Museum 1779–1803. The drawings may indeed have been part of the collection of natural objects, including some from Cook's voyages, given to the Museum in 1785 by a number of gentlemen including Lord Hailes (a great friend of Dempster's) and Professor Monro. This presentation was mentioned in the *Edinburgh New Philosophical Journal*, 1854, **47**: 33, but the details of it have not yet been traced.

The Sydney set, recently transferred from the Australian Museum to the Mitchell Library, was originally in the possession of Admiral Isaac Smith, a cousin of Mrs.

Cook's who was on the first and second of Cook's voyages. The notes in his hand appear to have been written years later and are largely misleading. The set in the Print Room is recorded in the Museum register as having been made " by or under the direction of Captain Clerke " who was on all three voyages ; Banks has noted the localities on the back of these drawings and added " Capt. Clarke [*sic!*] 1775 ". There is apparently no other suggestion in the Cook and Banks MSS. that Captain Clerke drew animals or plants. There is also no record of Anderson's having drawn or painted. Had he done so it seems likely that this would have been mentioned by Banks or Dryander, or by Dr. Walker. Cook's men were acclaimed everywhere after the voyages, but Anderson was the only man for whom Cook expressed a warm personal regard. Another fact that makes it doubtful that the drawings are the work of Anderson is that nowhere in the pages of his diary or notebooks, nor in his will, does he refer to drawings, though had he executed them himself he would have most probably mentioned them in his notebook in order to supplement his careful descriptions. Finally it seems not improbable that having laboured at learning such a technique on the second voyage he would have used it on the third to make drawings of Hawaiian and North American birds.* None of these drawings is mentioned in Dryander's MS. catalogue of the zoological paintings in Banks's library.

(*h*) William Ellis, d. 1785

Little is known of this painter and surgeon who signed on as surgeon's second mate on the *Resolution's* sister ship, the *Discovery* on 22nd March, 1776. He died in 1785 on his way to Germany (*Gentleman's Magazine*, 1785, **55** : 571) " where the Emperor had engaged him on advantageous terms to go on a voyage of discovery ". There is a sheet of notes on the animals of Pulo Condore bound with his paintings in the Zoology Library of the British Museum (Natural History) but nothing is known of the whereabouts of his other MSS.

(*i*) John Webber, ?1750–93

Webber sometimes signed himself William Webber but more often John ; Dryander calls him Gulielmus Webber in the published catalogue of Banks's library (**2** : 17). He was a son of Abraham Webber, a Swiss sculptor, who came to this country as a young man but sent John to Berne for his education. Later he studied in Paris. His portrait of his brother in an exhibition at the Royal Academy attracted Solander's attention and led to his appointment as artist to Cook's third expedition. His natural history drawings were only incidental to his landscape and figure work ; they are now to be seen in the Print Room, British Museum.

(*j*) Philip D'Auvergne, Duc de Bouillon, 1754–1816

I am indebted to Miss Lindsay McDougall, Archivist at the National Maritime Museum, for supplying me with the following details about D'Auvergne, especially since he was overlooked by the compilers of the *Dictionary of National Biography*, and his paintings were not sufficiently notable to merit his inclusion in the standard reference books on art. He is, however, mentioned in James Harrison's *Life of Nelson* (1806 : 34) and he wrote a short autobiography in the *Naval Chronicle* (**13** 1805 : 169). He came from Jersey and sailed as a midshipman with Banks's friend Phipps on his unsuccessful search for a north-east passage to the East Indies. In his autobiography, which was written in the third person, he says, " The engravings that elucidate the account of the Voyage to Spitzbergen, which was published by Captain Phipps in 1774, were all taken from original sketches [which he lists] made on the spot by Mr. D'Auvergne who was also charged with the meteorological registers ". Actually only three of the published engravings are ascribed to him. The few bird paintings listed below have considerable charm.

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* According to Solander they were the work of a midshipman. See J. C. Beaglehole, ed., *Journals of Captain James Cook*, 1959, **2**, for. p. CLXV, Graphic Records.

D'Auvergne became a F.R.S. in 1786, and rose to be a vice-admiral of the red.

(*k*) JOHN FREDERICK MILLER OR MÜLLER, n.d.

This artist who painted the Ivory Gull described by Phipps from the above voyage, was one of the twenty-seven children of Johann Sebastian Müller, a Nuremberg engraver who came to England in 1744 and was highly successful in his engravings of portraits of King George, Queen Charlotte and other members of the royal family. Probably on account of the numbers of his children there seems to be uncertainty about the dates of their births and deaths.

J. F. Miller accompanied Banks and Solander to Iceland in 1772. He executed the sixty plates which appeared 1776–85 under the title *Various Subjects of Natural History*. They were republished in 1796 as the *Cimelia Physica*, with text by G. Shaw who later became Keeper of Natural History and Modern Curiosities at the British Museum. Miller's brother James was also a draughtsman and both of them made botanical drawings for Banks.

(*l*) FRANCIS MASSON, 1741–1805, AND ROBERT JACOB GORDON, 1741–95

Masson was born in Aberdeen but came to London and worked under Aiton as an under-gardener at Kew for several years. His abilities attracted attention and in 1772 he was sent out as botanist and collector to the Cape of Good Hope by Sir John Pringle, then President of the Royal Society (Britten, 1884 : 114). He was markedly successful, and his botanical achievements were such that his zoological collections attracted little interest. It was not until Sir Norman Kinnear drew my attention to the inscription " Sent from the Cape of Good Hope to Sir John Pringle by Mr. Mason " on the back of a loosely mounted painting of the Namaqua Grouse, in the Print Room volume 199* B 4, that we realized that the Mr. Mason was in fact the famous botanist ; Banks's spelling was always shaky.

Masson's first visit to the Cape of Good Hope was from 1772 to 1775. During this time he made three expeditions (*Phil. Trans.* **66**, 1776 : 268) which have been discussed in detail by Hutchinson (1946 : 617–618). On the third of these (September, to December 1774) he and Thunberg went away north across Olifant's River and then inland to a dry, barren country, the Hantum, beyond the Bockland Mts., and about 350 miles north of the Cape of Good Hope. This was the most northerly country visited by Masson. From there they journeyed to the Rhinoceros River, south-east to the Rogge Veld Mts., and so to Cape Town.

Masson knew Gordon and together with Thunberg they had in 1773 visited the mountains between Cape Town and False Bay for a week's collecting.

Colonel Gordon was a Dutchman of Scottish extraction with a keen interest in natural history. He was in charge of the Dutch East India Company's garrison at the Cape. A great admirer of the Prince of Orange—he had named the Orange River after him—he had gratitude and affection for the English who had given asylum to the Prince. When therefore the British sent a naval force to the Cape in 1795 to take Cape Town lest their enemies, the French, should do so, Gordon handed the town over to them. Reactionaries at the Cape accused him of cowardice and this slur on his military honour led him to commit suicide. His obituary on pp. 442–443 of the *Gentleman's Magazine* for 1796 contains a good deal about his interest and work in natural history. Gordon is said to have drawn careful outlines of his specimens himself but to have employed a draughtsman to colour them. Dyer has pointed out (1949 : 59) that some of his botanical plates are indistinguishable from those attributed to Masson. Masson's *Stapeliae Novae* (1796) is his best known work, and Britten (1884), Baker (1885) and others have assumed that he illustrated it himself. Hutchinson, however, considers that this is not so, and it now seems possible that those plates as well as the South African natural history paintings in Banks's possession were Gordon's work. After Gordon's death his widow brought his paintings to London hoping to sell them, but neither Banks nor the British Government were willing to purchase them. In 1913 they were bought by the Rijks Museum in Amsterdam where they now are. In September 1956, Dr. W. R. P. Bourne kindly examined them on my behalf and he tells me that those of birds and mammals are identical in style with those in the Print Room vol. 199* B 4 attributed to Masson, and that some are indeed duplicates. It is of interest that in 1818 I. B. Ker stated that Masson had acquired a valuable portfolio of natural history drawings, the work of a gifted Dutch soldier, at the Cape of Good Hope. He goes on to say that many of the drawings endorsed in Banks's hand " Mr. Mason, Cape of Good Hope, 1775 " had been given by Banks to the Department of Botany, British Museum. A similar endorsement appears on the back of some of the South African bird paintings listed below.

(*m*) Mrs. Brant

Mr. Warren R. Dawson has kindly given me these notes on the Brant (also spelt Brandt or Brand) family. Christoffel Brant was born at the Cape of Good Hope in 1730, and when a young man entered the service of the Dutch East India Company. He entertained Cook and Banks when the *Endeavour* visited Cape Town in 1771. Mr. and Mrs. Brant sent plants (including some collected by Skene, surgeon of the *Morse*), animals and drawings to Banks ; the drawings in the Print Room vol. 199* B 4 are unsigned but are so similar to Colonel Gordon's work that I should not have hesitated in ascribing them to him were it not for the fact that some of them are dated 1772, and according to Dyer (1949) Gordon did not reach the Cape until 1773. It is possible that they are the work of the draughtsman who later entered Gordon's service.

(*n*) JOHN GREENWOOD, 1727–92

This portrait painter was born in Boston, Mass. At the age of fifteen he was apprenticed to Thomas Johnston, an artist in water colour, heraldic painting, japanning and engraving. Ten years later he went to Surinam where according to the *Dictionary of National Biography* he remained until 1757, making a considerable success of his paintings of the wealthy Dutch planters, and collecting and sketching plants and animals. In 1758 he went to Amsterdam for further training, and he finally settled in London where he realized that his work was so inferior to that of his friend Gainsborough that he gave up painting and became art critic and auctioneer. According to Dryander, Banks owned seven of his drawings; two of these were reproduced in Pennant's *History of Quadrupeds* (1781 : pls. 49, 50). (See also Burroughs, 1943.)

4. A GENERAL NOTE ON THE PAINTINGS, WITH A KEY TO ABBREVIATIONS

All the drawings listed in the following pages are either pencil sketches or water-colour drawings, sometimes with the addition of a good deal of body-colour. I have usually indicated whether they are sketches or finished paintings, but when the whole collection consists of finished work, as in the case of the Parkinson paintings on vellum which include his Newfoundland birds, and the Webber water-colours of birds from Cook's third voyage, this is noted at the beginning of the series and not for each drawing.

The drawings are numbered with the number of the folio on to which they are affixed. The numbering is not necessarily consecutive since some of the collections are mixed. Even the first drawing in a volume is not always numbered " 1 " as, for instance, in the case of the Webber drawings which begin at 105, and must be part of a larger series, the whereabouts of the remainder being so far unknown.

In the transcription of the MS. notes on the drawings those believed to be by the artist are placed first and are not preceded by a bracketed initial; those by Banks, Dryander etc. are always preceded by a bracketed initial, according to the abbreviations given below: those by Latham and later writers have not been identified with certainty and are simply preceded by *Al.*

An asterisk indicates that the published description of the species was based on that particular drawing which should therefore be regarded as the type. Cross references to other paintings of a species in Banks's library are given at the end of the notes on each drawing.

Trinomials have been used when geographical distribution appears to justify them. Many of them are, in fact, based on the specimens collected on these expeditions.

Cross references to other drawings of a species are given only for birds collected on Cook's voyages.

The principal abbreviations used are the following: B., Sir Joseph Banks; D., Jonas Dryander; J. R. F., Johann Reinhold Forster; S. Daniel Solander; A.M., paintings from the volume formerly in the Australian Museum, now in the Mitchell Library, Sydney; M.E., paintings from the volume in the Royal Scottish Museum; P.R., paintings from the Print Room volume 199 B 4.

5. PAINTINGS BY SYDNEY PARKINSON AND PETER PAILLOU OF BIRDS COLLECTED BY BANKS IN NEWFOUNDLAND AND LABRADOR IN 1766

(a) *Parkinson's Paintings* (15) *Contained in Brit. Mus.* (*Print Room*) *Vol.* 199* *B* 1, *ff.* 8–39.

These water-colour drawings on vellum were catalogued by Dryander. Some of them have been trimmed so that Banks's notes on locality etc. on the back have been lost or mutilated but it has been possible to trace some specimens from notes in Banks's diary, or from his MS. now in McGill University Library. I am most grateful to Dr. T. H. Manning for checking my identifications of the paintings of these northern birds.

8. ***Dendroica petechia*** (Linn.), 1766. Yellow Warbler, male.

> " Sydney Parkinson pinxt, 1767. *Motacilla petechia.* Olivacea, subtus flava rubro guttata, pileo rubro. Habitat in America septentrionali Linn." (B.) " Dry specimen. Newfoundland. Gold Bird. N. 63." (*Al.*) " 156."

Parkinson's notes do not agree with the painting since the bird he painted had no red cap, and is a fair representation of *D. petechia.* Banks seems to have used the vernacular name " Gold Bird " for three warblers: the Yellow Warbler *D. petechia*, the Palm Warbler *Dendroica palmarum* (Gm.), 1789 and Wilson's Pileolated Warbler *Wilsonia pusilla* (Wilson), 1812. The male Palm Warbler is similar to the Yellow Warbler but has a chestnut cap and is almost certainly the bird referred to by Parkinson in his note on this painting. Banks clearly described the male and female of Wilson's Pileolated Warbler as " Gold Bird " in the McGill MS. He also noted a bird similar to the female of this last species, but paler, which was probably the female of the Yellow Warbler. All these warblers were taken at St. John's in early June.

14. ***Passerella iliaca*** (Merrem), 1786. Eastern Fox Sparrow.

> " Sydney Parkinson pinxt 1767." (B.) " [Dr]y specimen. [New]foundland." (*Al.*) " *Fringilla betula.*"

Banks described this bird as an unknown *Fringilla* when he first collected it at St. John's on 26th May; on 7th October he took it again at Croque and then re-described it, giving it the MS. binomial of *F. betula.*

19. ***Lagopus lagopus alleni*** Stejneger, 1884. Allen's Willow Ptarmigan.

> " Sydney Parkinson pinxt. 1768. *Tetrao Lagopus* Linne."

Banks has left no special notes on this ptarmigan but described in detail the mainland race from Chateau Bay. Parkinson's painting shows a bird in nearly full winter plumage, and the brown colouring of the webs along the dark shafts of the primaries show that it is intended to represent the race known as Allen's Willow Ptarmigan which is restricted to Newfoundland.

20. ***Crocethia alba*** (Pallas), 1764. Sanderling.

> " Sydney Parkinson pinxt. 1767." (B.) " [Dry sp]ecimen [New]foundland gregarious." (*Al.*) " *Tringa hypoleucos*. 12."

The Sanderling passes through Newfoundland as an autumn migrant.

21. ***Erolia minutilla*** (Vieill.), 1819. American Stint or Least Sandpiper.

> " Sydney Parkinson pinxt. 1767." (B.) " [Dry] specimen Newfoundland No. 37 125."

Banks gave this bird the MS. name of *Tringa littorea*, and states that he collected it in marshes near the sea at Chateau Bay in August.

23. ***Surnia ulula caparoch*** (Muller), 1776. American Hawk Owl.

> " Peint d'après nature par Sidney Parkinson 1768. *Strix funerea* Linne Syst. nat." (B.) " [New]foundland No. 10 79."

According to Banks this owl was taken both at Croque in Newfoundland and at Chateau Bay. It is now said to be very rare in Newfoundland.

26. ***Somateria mollissima*** (Linn.), 1758. Eider Duck.

> " Peint d'après nature par Sidney Parkinson. *Anas mollissima* mas & femina. Length from the point of the tail to the tip of the bill 28 inches." (B.) " Newfoundland. No. 29."

Three races of these eider ducks, in addition to the King Eider which belongs to another species, have been recorded from Newfoundland and Banks appears to have collected them all. The American Common Eider *S. m. dresseri* Sharpe, 1871 is regarded as the common nesting bird there ; the Northern Common Eider *S. m. borealis* (Brehm), 1824 is abundant in the non-breeding season ; and the Pacific Common Eider *S. m. v-nigra* Gray, 1856 is said to be a rare visitor.

Parkinson's painting shows a male bird's head tilted so that the frontal processes can be clearly seen ; it appears to be a Northern Common Eider. Banks comments on the enormous numbers of eider ducks nesting at Hare Bay ; they were most probably the American Common Eider which still nests there and is thought to be the only breeding species. However, it is clear that he took the Pacific Common Eider there as well, since in his notes on an eider duck taken at Hare Bay in June he says " sub gula linea nigra " and it is the presence of the black " v " beneath the throat that distinguishes this last species from the otherwise similar American Common Eider.

The King Eider *Somateria spectabilis* (Linn.), 1758 was painted by Paillou (f. 109) but we know nothing of the circumstances in which it was obtained save for Banks having written on the painting that it was a Newfoundland specimen.

27. ***Anas acuta tzitzihoa*** Vieillot, 1816. Pintail, young bird.

> " Sydney Parkinson pinxt 1767."

Banks's notes have been trimmed away save for " No. 28 " and the typical flourishes of some letters, presumably the top of his " Newfoundland." It is probable that this bird was taken at Chateau Bay since Banks describes one as "*Anas gracilis*," which he collected there in September.

28. ***Anas discors*** Linn., 1766. Blue-winged Teal, female.

> " S. Parkinson pinxt. 1767. *Anas discors* (mas) tectricibus alarum caeruleis, remigibus secondariis extus viridibus, fascia frontali alba. Habitat in America septentrionali. Linneus." (B.) " No. 27."

This species was taken at Chateau Bay on September 12th.

29. ***Anas crecca carolinensis*** Gm., 1789. Green-winged Teal.

> " Sydney Parkinson pinxt. 1767. *Anas discors* (femina)." (B.) " Specimen [New]-foundland. The female of the Blue winged Teal." (*Al.*) " 114."

Banks's description of a young teal (*Anas phascas* from Chateau Bay in MS.) seems to apply to this species. Austin (1932 : 44) considers that it is a rare visitor in Labrador. Its status in the eighteenth century may well have been different.

31. ***Colaptes auratus*** (Linn.), 1758. Yellow-shafted Flicker.

> " Sydney Parkinson pinxt. 1768. *Picus auratus* Linne." (B.) " No. 22."

The Yellow-shafted Flicker commonly occurs in Newfoundland in the summer.

35. ***Falco columbarius columbarius*** Linn., 1758. Eastern Pigeon Hawk, a young bird.

> " Peint d'après nature par Sydney Parkinson. *Falco columbarius* Faemina."

36. ***Falco columbarius columbarius*** Linn., 1758. Eastern Pigeon Hawk, male.

> " Sydney Parkinson pinxt. 1767. *Falco columbarius* (mas). cera lutea, corpore fusco-subtus albido, caudo fusca fasciis linearibus quatuor albis." (B.) " [Sp]ecimen, bird shot in Newfoundland."

Banks collected this species, which he called *Falco vigil*, on 26th September, 1766 when he was at Chateau Bay.

38. ***Canachites canadensis*** (Linn.), 1758. Spruce Grouse.

> Unsigned painting. " *Tetrao canadensis*, pedibus hirsutis, rectricibus nigris, apice fulvis, lituris duabis albis ad oculos. Linneus syst. nata." (B.) " [D]ry specimen Wood partridge. Male and female. [Newfound]land.

Banks commented on the abundance of " partridges " at Chateau Bay, and he described this species from a specimen taken there in September.

39. ***Numenius borealis*** (Forster), 1772. Eskimo Curlew.

> " Sydney Parkinson pinxt. May 1767."

Banks considered that there were three species of curlew at Chateau Bay, all of which were good eating, but his only detailed description left to us is of the Hudsonian Whimbrel. The entry in his diary for 9th August contains the following passage : " The country . . . abounds in game, . . . But particularly at this Season, with a Bird of Passage, called here a Curlew, from his great likeness to the smaller sort of that Bird found in England ; their chief food is berries, which are here in great abundance, of several sorts; with which they make themselves very fat, and I think (tho' prejudiced), almost as good as our Lincolnshire Ruff and Reeve: I have not yet been able to trace their course, but find, that by the latter end of September they arrive at Trinity Bay, after having coasted so far along the Island of Nfland, in vast abundance; where they proceed, or when they return I cannot learn: I have heard, but not from any certain Authority that they go to the vast Lakes at the Head of the River St. Lawrence." It is probable that these migrating birds were Eskimo Curlews since Banks says they were like whimbrel.

Forster's description of the Eskimo Curlew, published six years later, was of a bird sent to the Royal Society from the Governors of the Hudson Bay Company, as part of a collection made in connection with observations on the Transit of Venus. In 1785, three years later, Pennant published an engraving of Parkinson's painting without reference either to Banks or Parkinson, and in 1951 this engraving was reproduced by Mrs. Allen (fig. 33) who was then unaware that it was Parkinson's work.

(b) *Paillou's Paintings* (14) *Contained in Brit. Mus.* (*Print Room*) *Vol.* 199* *B* 4, *ff.* 89–110.

These are all water-colour drawings on cartridge paper. They are bound in a volume of miscellaneous natural history paintings from Banks's collection.

89. ***Melanitta perspicillata*** (Linn.), 1758. Surf Scoter, female.
Unsigned painting. (B.) " Newfoundland." (D.) " Paillou."

The feathering on the culmen is clearly shown on this painting, but the pale colouring on the cheeks is undivided. Banks described a young male of this species taken at Chateau Bay on 13th September.

98. ***Arenaria interpres*** (Linn.), 1758. Ruddy Turnstone.
Unsigned painting. (B.) " Newfoundland " (D.) " Paillou."

Banks took this species at Chateau Bay in September, and had four skins in his collection from Labrador.

*99. ***Tringa melanoleuca*** (Gm.), 1789. Greater Yellowlegs.
Unsigned painting. (B.) " [Dri]ed specimen. Newfoundland."

Banks gave detailed notes on this species, taken at Chateau Bay in August. Latham (1785 : 153) and Pennant (1785 : 468) based their descriptions on Banks's, and since Gmelin quotes them and no other author it would appear that this is a painting of the type specimen, and that Chateau Bay is the type locality.

100. ***Eremophila alpestris*** (Linn.), 1758. Horned Lark.
Unsigned painting of two males.

There are no MS. notes on this painting but we know from the MS. lists of the birds in Banks's collection that he had three skins of this species from Labrador.

Paillou has not shown any yellow areas on the face or throat, and his painting is inaccurate since it shows the downcurved eye stripe to be concurrent with the black chest-band, and the rufous area on the sides of the breast to extend right across it. It seems that this may be the " lark of St. Julian's Isle " to which Banks refers in his notes but he gives no description.

101. ***Botaurus lentiginosus*** (Montagu), 1813. American Bittern.

Unsigned painting. (B.) " Dry specimen brought from Newfoundland." (D.) " Paillou."

Neither Latham nor Pennant refer to Newfoundland as within the range of this species. Banks mentions it in an incomplete list of his specimens but there is no description in the MS. that has survived.

102. ***Falco peregrinus anatum*** Bonaparte, 1838. American Peregrine Falcon, or Duck Hawk.

Unsigned painting of a young bird. (B.) " Newfoundland." (D.) " P[ai]ll[ou]."

Only the top of Dryander's ascription is visible as the painting has been trimmed. On the *verso* is a pencil sketch of the bird with measurements, the total length being given as 19 inches.

*103. ***Buteo lagopus sancti-johannis*** (Gm.), 1788. Rough-legged Hawk.

Unsigned painting. (B.) " No. 2 fore view. [D]ry specimen [N]ewfoundland *F. lagopus* 2nd." (D.) " Paillou. Lath. 77 n. 58." (*Al.*) " St. John's Falcon Latham."

Latham described the race from this and the next drawing. Pennant (*op. cit.*) added Hudson's Bay to Newfoundland, the only locality given by Latham, and referred to a specimen in the " Bl. Mus. ", that is, Mrs. Blackburne's collection. However, since Latham's was the earlier publication and his account was copied first by Pennant (*op. cit.* : 201), and later by Gmelin who gave the species a scientific binomial (1788 : 273), it would appear that this painting and the next are the types of the race. Moreover, in the McGill MS. there is a description of this subspecies with the date Sept. 20th, 1766, and the locality " Chateaux ", so that the type locality should be Chateau Bay, Labrador, instead of Hudson Strait and Newfoundland (see Friedmann, 1950 : 328) ; f. 107 is a third painting of the subspecies ; it represents a young bird in the dark phase.

*104. ***Buteo lagopus sancti-johannis*** (Gm.), 1788. See f. 103.

Unsigned painting. (B.) " No. 2 back view [Ne]wfoundland. [D]ry specimen—*Lagopus* 2da." (D.) " Paillou. Lath. 77. n. 58." (*Al.*) " St. John's Falcon Latham Publ. in Pennant's *Arctic Zoology* t. 9, p. 200."

The reference to Pennant's plate is correct and the bird in it is directly copied from this painting save that it is shown standing on a bough instead of a rock ; the background is " improved " to become a landscape, and the whole plate, which includes a representation of an immature bird (see f. 107) thought by Pennant to be a different species, bears Moses Griffith's signature and not that of the original artist. This painting and the last are together the types of the subspecies.

105. ***Circus cyaneus hudsonius*** (Linn.), 1766. American Marsh Hawk.

Unsigned painting of a juvenile bird; on the back is a pencil sketch with some dimensions. (B.) " [Dry] specimen. [New]foundland. *Pygargus* foemina." (D.) " Paillou, Lath. 54. n. 34. b." (*Al.*) " White Rumpd Bay Falcon Latham *Aeruginosus* ?."

Latham's description fits this painting very closely, and since he refers to a drawing in Banks's collection there seems little doubt that this is it. The synonymy of this race is given in considerable detail by Friedmann (*op. cit.* : 504–515) who, however, makes no direct reference to the White-rumped Bay Falcon.

*106. ***Accipiter gentilis atricapillus*** (Wilson), 1812. American Goshawk.

Unsigned painting of a young bird. (B.) " Newfoundland. *Buteo americanus.*" (D.) " Paillou. Lath. 79. n. 60." (*Al.*) " Newfoundland Falcon Latham." (Plate 35.)

Latham described the Newfoundland Falcon from this drawing (1781 : 79) and his account was copied by Pennant (1785 : 201). Gmelin based his *Falco novae-terrae* (1788 : 274) on both but the name does not appear in the *Cat. Birds Brit. Mus.* Friedmann places *novae-terrae* at the head of this list of synonyms of this race (1950 : 153) but in fact it seems clear that it is in fact the valid name, and that this painting is the type. In Banks's unpublished notes he described the breast and abdomen as white with black streaks but he had more than one specimen and Paillou's illustration shows the ochraceous black-streaked breast sometimes seen in young birds. Banks notes that he took the bird both at Croque and Chateau Bay and the type locality should be altered accordingly. I am grateful to Dr. Wetmore for having checked my identification of this drawing.

107. ***Buteo lagopus sancti-johannis*** (Gm.), 1788. Rough-legged Hawk.

Unsigned painting; pencil sketch with measurements on *verso.* (B.) " Dry specimen. Newfoundland. *Lagopus prima.*" (D.) " Paillou. Lath. 76. n. 57." (*Al.*) " Published in Pennant's *Arctic Zoology* tab. 9. p. 201. *Placentia* Falcon Latham."

This painting of a young Rough-leg in the dark phase was carefully copied by Moses Griffiths and engraved by Mazell for Pennant (*loc. cit.*) who called the bird the Chocolate-coloured Falcon; the engraved bird is shown in the plate already referred to in the note on f. 104, which therefore depicts, though Pennant was unaware of the fact, both adult and immature stages of the above subspecies. Latham placed his description of the young bird next to that of the adult (1781 : 76, 77). Gmelin confused Forster's Chocolate-coloured Falcon, i.e. *Circus cyaneus hudsonius* (f. 105) which is a harrier, with Pennant's (1788 : 273), which is a buzzard. Friedmann (*op. cit.* : 329) refers only the upper figure in Pennant's plate to *B. lagopus sancti-johannis.*

108. ***Stercorarius*** sp. A young skua.

Unsigned painting of a young bird, possibly an Arctic Skua.

What remains of a scrap of writing on the back has been so rubbed that it is no longer legible, except for " Newfoundland " very faintly discernible in Banks's hand. On p. 78 of the transcript of his diary he writes : " The People here tell a remarkable Fact, if it is a true one : of a kind of Duck, called here Lords and Ladies, who they say at times Pursue the Gulls, whom they persecute, till they make them dung; which they catch with great dexterity, before it reaches the water; and immediately leave off the chace." This is how the skuas behave to make the gulls vomit their catch. Banks was mistaken over the popular name which is that of the Harlequin Duck, a bird that dives for its food.

109. ***Somateria spectabilis*** (Linn.), 1758. King Eider.

Unsigned painting of a male. (B.) " [Ne]wfoundland." (D.) " Paillou." (*Al.*) " *Anas spectabilis*."

Latham and Pennant both call this bird the Bering Goose and neither records it from Newfoundland.

110. ***Histrionicus histrionicus*** (Linn.), 1758. Harlequin Duck.

Unsigned painting of the male and female. (B.) " Newfoundland where they were said to be male and female." (D.) " Paillou." (*Al.*) " *Anas histrionica*."

Neither Latham nor Pennant refers to this drawing, and although the former includes Newfoundland in the range of the species he gives Edwards as his authority. Banks described this duck in MS., but gave no locality.

6. BIRDS PAINTED BY SYDNEY PARKINSON ON COOK'S FIRST VOYAGE, 1768–71

Parkinson's Paintings (35) *Contained in Vol.* 1 *of His Unpublished Drawings in Brit. Mus.* (*Nat. Hist.*) *Zoology Library, ff.* 7–38.

Parkinson seems to have sketched the birds as they were collected but seldom finished his paintings of them. Fortunately, however, he made notes on the colour, usually on the back of the painting, and Banks usually added the date, locality and the name given to the bird by Solander at the time. In a number of cases Solander's unpublished descriptions of the animals collected on the first voyage have been useful in identifying these drawings, most of which are to scale.

7. ***Milvago chimango*** (Vieill.), 1816. Chimango Caracara.

Unsigned pencil sketch. " The colour of the beak pale blueish grey, the feet a dirty grey blue." (B.) " *Terra del Fuego*. No. 12, *Falco*."

This bird was not given a scientific name until Vieillot described it from notes published 1802–05 by Don Felix de Azara, a Spanish brigadier-general and distinguished naturalist and geographer who travelled extensively in South America during the last twenty years of the eighteenth century.

8. ***Cyanoramphus zealandicus*** (Latham), 1790. Red-rumped Parrot.

Unsigned painting. " Aa." (B.) " No. 5, Green perroquet." (D.) " S. Parkinson." (S.) " Otahite." (*Al.*) " *Psittacus pacificus* V. S.N. XIII 329 n. 88."

When Latham described this bird from a specimen in the British Museum he erroneously gave New Zealand as its habitat, hence its inappropriate specific name.

It was confined to Tahiti where it was last collected in 1844; presumably it became extinct about that time.

Forster, f. 47.

9. ***Vini peruviana*** (P. L. S. Müller), 1766. Tahitian Blue Lory.

Unsigned pencil sketch. " Avinne. The face, throat and breast white the rump and rect. dirty grey turng. blue towards the edge, the feet and beak a bright orange claws black all the rest of the body wt dark ultramarine shaded wt. P.B. like shining blue steel." (B.) " No. 3, Blue Perroquet, Otahite." (D.) " S. Parkinson." (*Al.*) Latham 255–59. *Psittacus taitianus* S.N. XIII 329 n. 91. *Psittacus* . . . ? Forster."

This small lory was first made known to European scientists by Commerson, naturalist to Bougainville on his voyage round the world in 1767–69. A coloured drawing remains with the Commerson MSS. in the Muséum d'Histoire Naturelle, Paris, to-day. In 1779 Buffon described this bird from Commerson's notes, and a plate by Martinet entitled " La Petite Perruche d'Otahiti," was published in 1783 in Daubenton's *Planches Enluminées*: 455, no. 2. Previously, however, Statius Müller had published the scientific name by which it is known in the supplement to his edition of the *Systema Naturae* (1776 : 80). He quotes Buffon as his authority and it is probable that he knew him and had access to his MSS., but he must have muddled his notes and wrongly gave Peru as the habitat, hence the specific name.

Forster, f. 49, M.E. 12; Ellis, f. 14; Webber, f. 140.

10. ***Calyptorhynchus magnificus magnificus*** (Shaw), 1790. Banksian Cockatoo.

Unsigned pencil sketch. " The whole bird black spots on the head and on the shoulders dirty white the breast feathers wav'd wt pale brown, the outer feathers of the tail scarlet and yellow wt narrow facia of black. The iris dark brown the pupil black, the beak dirty white with the point of the upper mandible dark grey." (B.) " Black Cocatoa." (*Al.*) " Latham 260 n. 61."

Latham (1787 : 63) says that Banks brought one of these birds back from New Holland. It is likely that Shaw used specimens sent back to England by John White, Surgeon-General to the settlement at Port Jackson, who stated that he deposited his birds in the Leverian Museum (1790 : A2, 139); Arthur Phillip, the first Governor of New South Wales, also described this bird but failed to give it a scientific name (1789 : 267).

11. ***Anas flavirostris flavirostris*** Vieill., 1816. Yellow-billed Teal.

Unsigned pencil sketch. " The beak very dark brown changing gradually into yellowish toward the base of the upper mandible the feet purple brown. The length of the wing in the natural size 7½ inches. 17. *Anas antarctica*." (D.) " S. Parkinson." (B.) " Terra del Fuego."

Vieillot described this bird from specimens taken at Buenos Aires. He does not tell us who collected them.

Sol. MS. Z4: 1.

12. ***Oceanites oceanicus oceanicus*** (Kuhl), 1820. Wilson's Petrel.

Unsigned pencil sketch. " The head, neck breast and back soot colour which gradually grows paler on the coverts of the wings to their edges—which are bordered wt white, the large wing feathers and the tail of the same sooty colour by shaded with M. blk the upper coverts of the tail and the sides pure white. the beak blk as are the Feet wt a spot of yellow on each web." (B.) " Decr. 22. 1768 *P. oceanica.*" (D.) " S. Parkinson."

Kuhl described this bird (1820 : 136) referring to this drawing, but he also used a specimen which was then in Temminck's collection.

Solander MS. Z4 : 55.

*13. ***Pelagodroma marina marina*** (Lath.), 1790. White-faced Storm Petrel.

Unfinished and unsigned painting. " The throat breast and belly white the Remiges, Rectrices and beak black the feet black on the webs marks of yellow as mark^{d} out in the figure." (D.) " S. Parkinson." (B.) " Dec. 23. 1768. Lat. 37 South. No. 6 *Procellaria aequorea.*"

Latham's description was drawn up from this drawing in Banks's collection (1785 : 410, 1790 : 826) which therefore becomes the type. See also Kuhl 1820 : 137.

Sol. MS. Z4 : 57.

14. ***Fregetta grallaria*** (Vieill.), 1817. White-bellied Storm Petrel.

Unsigned, unfinished painting. " The large feathers of the wing, the tail, Beak and feet are black the belly and coverts of the tail white." (B.) " Dec^{r} 23d. 1768. Lat. 37. South No. 7. *Procellaria fregata.*" (D.) " S. Parkinson."

Dr. Bourne tells me that Vieillot's type (1817, **25** : 418) is from Boudin's voyage, and is in Paris. He gives New Holland and the southern seas as its habitat. Actually this species does not breed in Australia but does so on Lord Howe Island, in the Austral Group, on Juan Fernandez, Tristan da Cunha, Gough Is., and probably, in the past, St. Paul and Amsterdam Islands.

The first part of Solander's note on *Procellaria fregata* (MS. Z4 : 51) refers to *F. grallaria* Vieill. the second to *F. tropica* Gould.

15. ? ***Pachyptila belcheri*** (Mathews), 1912. Slender-billed Whale Bird.

Unsigned pencil sketch. " The beak a pale blueish lead colour—the legs and toes pale blue wt a cast of purple the webs a dirty white." (B.) " Feb. 1st. 1769. Lat 59.00. 14 *Procellaria turtur.*" (D.) " S. Parkinson."

This drawing appears to represent the above species but since Solander's description (MS. Z4 : 65) contains no measurements of the width of the bill one cannot be certain of this. Kuhl's *Procellaria turtur* (1820 : 143) was based on this drawing and therefore becomes indeterminate. A note on the ensuing changes in nomenclature is being published by Dr. R. A. Falla who kindly confirmed the above comments for me.

Ellis, f. 43.

16. ***Pterodroma longirostris*** (Stejneger), 1893. A gadfly petrel.

Unsigned pencil sketch. " The beak black the legs and toes pale violet, grey on the outermost toe the webs dirty white and partly grey veind wt dirty purple." (B.) " Feb. 15. 1769. Lat. 48.27, Long . 93.22 *Procellaria velox.*" (D.) " S. Parkinson "

Solander gives blue feet as a diagnostic character for the gadfly petrels he collected across the Pacific (MS. Z4 : 68), which as Dr. W. R. P. Bourne has pointed out (personal communication) probably included eight of the nine small gadfly petrels discussed by Falla (1942 : 111). Parkinson's bird must belong to one of the two species exploiting this zone of surface water in the south-eastern Pacific, that is to *Pterodroma cookii* G. R. Gray or to *P. longirostris* ; as it has the short bill typical of the latter species it is very probably a member of the race of *longirostris* that nests at Juan Fernandez. *Procellaria velox*, which was restricted by Mathews to Parkinson's bird (1912 : 170), must therefore be regarded as a synonym of *Aestralata longirostris* Stejneger, 1893.

Sharpe thought that this was perhaps a drawing of the Blue Petrel *Halobaena caerulea* (Gm.) but Solander's description does not apply to that bird.

17. ***Macronectes giganteus*** (Gm.), 1789. Giant Petrel, Stinker or Nellie.

Unsigned pencil sketch. (B.) " *Procellaria gigantea* α. 18 *Procellaria gigantea* Febry 2nd, 1769. Lat. 59 S." (D.) " S. Parkinson."

There was a specimen in the British Museum.

Parkinson, f. 18 ; Forster, f. 93a ; Ellis, ff. 39, 42 ; Solander MS. Z4 : 73.

18. ***Macronectes giganteus*** (Gm.), 1789. Giant Petrel, Stinker or Nellie.

Unsigned painting, complete except for the legs and feet. " Mem. the feet are Gray." (B.) " Decr. 23. 1768. *Procellaria gigantea* β." (D.) " S. Parkinson."

See notes on f. 17.

19. ***Procellaria equinoctialis aequinoctialis*** Linn., 1758. White-chinned Petrel, Shoemaker, or Cape Hen.

Unsigned pencil sketch, the beak coloured. (B.) " 19. *Procellaria fuliginosa*. Feb. 2nd, 1769, Lat. 58." (D.) " S. Parkinson."

Although this drawing is uncoloured except for the bill, Solander's description (MS. Z4 : 77) makes it quite clear that it represents the White-chinned Petrel described by Linnaeus from George Edwards's drawing.

20. ***Pterodroma incerta*** (Schlegel), 1863. Schlegel's Petrel.

Unsigned and unfinished painting. " Mem. The beak is black the legs and upper part of the feet pallid white the lower part where mark'd off dark brown the claws black the under part of the whole bird is white." (B.) " Decr. 23, 1768. No. 4 *Procellaria sandaleata*." (D.) " S. Parkinson."

This painting and Solander's description of the bird depicted (MS. Z4 : 89) have been much discussed and it has been suggested that two species were involved since it seemed clear that although Solander had described *P. incerta* the painting bore some resemblance to *P. arminjoniana* (Gigl. & Salv.). A careful comparison of the plate with series of skins of *arminjoniana* and *incerta* shows that it is closer to the latter species, especially with regard to the structure of the bill, and the colouring of the chin, throat and wings. The drawing is dated and labelled in Banks's hand, and in his diary he says that on 22nd Dec. 1768, " Dr. Solander and myself went out in the boat and shot . . . two shearwaters, both prov'd new : *Procellaria*

Gigantea and *sandaliata* ". Now it is much more likely, as Dr. Bourne has pointed out to me, that *incerta* rather than *arminjoniana* would be in the same zone of surface water as *Macronectes gigantea*, and Solander's description of *sandaliata* as a bird 17½ inches long could scarcely apply to *arminjoniana*. It does appear, therefore, that both the drawing and the description are of *P. incerta*.

21. ***Pterodroma inexpectata*** (Forster), 1844. Mottled Petrel, the Rain Bird of New Zealand.

Unsigned pencil sketch. " The bill entirely black the iris of the eye brown pupil black." (B.) " 15 *Procellaria lugens*. Feb. 1st., 1769. Lat. 59.00." (D.) " S. Parkinson."

Details of the colouring of this petrel are given by Solander (MS. Z4 : 91). Since the throat and jugular area are white and the breast grey with wavy white markings we cannot accept Sharpe's suggestion that it was *Pterodroma brevirostris* (Lesson) a wholly dark grey species. Parkinson's drawing shows the scutellations on the head and the ruffled inner white webs of the primaries which are conspicuous in some skins of *P. inexpectata*, a bird with a very wide range, described by Forster (ed. Lichtenstein) in 1844. The name *Procellaria lugens* with a reference to Banks's i.e. Parkinson's drawings, was published by Kuhl (1820 : 144–145, pl. XI, fig. 9) but his figure and description could apply either to the species known as *Pterodroma brevirostris* Lesson, or to the dark phase of *P. mollis* Gould, and therefore becomes indeterminate (Bourne, *Ibis*, 1957).

Forster, f. 97.

22. ***Pterodroma inexpectata*** (Forst), 1844. Mottled Petrel, the Rain Bird of New Zealand.

Unsigned pencil sketch. " The beak black the legs and that part of the foot next them dirty white the remainder black." (B.) " Febry 3d, 1769 15, *Procellaria lugens*. Sketch made by mistake." (D.) " S. Parkinson."

See notes on f. 21.

23. ***Puffinus griseus*** (Gm.), 1789. Sooty Shearwater or New Zealand Muttonbird.

Unsigned pencil sketch. " The beak fuscus the lower mandible paler to blueish the feet of the same colour." (B.) " 23 *Nectris fuliginosa*. Feb. 15. 1769. Lat. 48 : 27. Long. 92." (D.) " S. Parkinson."

A specimen was in the Leverian Museum.

Forster, f. 94 ; Solander MS. Z4 : 111.

24. ***Puffinus assimilis*** ? subsp. Little or Allied Shearwater.

Unsigned pencil sketch. " The beak blue grey towards the back and the point black the legs and feet the same colour as in the *Procellaria cyanopeda*." (B.) 24. " *Nectris munda*." Feb. 15. 1769. Lat. 48.27. Long. 93." (D.) " S. Parkinson."

On pp. 115–116 of MS. Z4, Solander describes two birds under the name *Nectris munda*, one taken on 15th February, 1769, which was the bird drawn by Parkinson, and the other on 6th January, 1770, when the *Endeavour* was west of Hokianga, New Zealand. Parkinson's sketch is clearly the type of Kuhl's *Procellaria munda* (1820 : 146), now a *nomen rejectum*. Precise classification of these southern ocean forms of *P. assimilis* is still unsettled.

25. ***Diomedea exulans*** Linn., 1758. Wandering Albatross.

Unsigned painting, not quite finished, of an immature bird. " The face and throat white as mark^{d} off one the figure the whole body above fusca palido the belly the feet whitish wt a cast of blue and the nails white." (B.) " Dec^{r}. 23 . 1768. Lat. 37 South. No. 9 *Diomedea exulans.*"

Forster, f. 99, A.M. 43 ; Ellis, f. 44.

26. ***Phoebetria palpebrata*** (Forst.), 1785. Light-mantled Sooty Albatross.

Unsigned pencil sketch. " The bill intirely black, the iris of the eyes yellow Brown the pupil black the skin that goes along the beak from the head pale violet clouded w^{t} pale brown." (B.) " 13 *Diomedea antarctica* Feb. 1st 1769 Lat. 59." (D.) " S. Parkinson."

Solander described a Light-mantled Sooty Albatross (MS. Z4 : 9) caught on the day Parkinson made this sketch and as they both used the name *Diomedea antarctica* there seems no doubt about the identification of this drawing.

A.M. 49 ; Forster, f. 102.

27. ***Diomedea chrysostoma*** Forster, 1785. Grey-headed Albatross.

Unsigned pencil sketch. " The beak black excepting the back of the upper mandible and part of the under one which is a dirty greenish white." (B.) " 21. *Diomedea profuga.* Feb^{ry} 3^{d} 1769. Lat. 57.30." (D.) " S. Parkinson."

Sharpe, following Gray & Salvin, thought that this was a sketch of *Diomedea chlororhynchos* Gm., but, according to Murphy (1936 : 521), that species has not been found on the west coast of South America or in the eastern Pacific. Parkinson's note on the colour of the bill suggests that his bird was an immature specimen of *D. chrysostoma* and this is confirmed by Solander's account (MS. Z4 : 11–12) of " *Diomedea profuga* " taken on 3rd and 15th February, 1769, that is SW. and W. of Cape Horn.

Forster, f. 101.

28. ***Fregata magnificens*** Mathews, 1914. Magnificent Frigate Bird.

Unsigned pencil sketch. " The Beak is of a lead colour whitish towards the base of the upper mandible the bag is of a dirty orange the feathers of the whole body is quite black having a cast of Purple on the back the feet and Claws lead Colour." (B.) " Rio Janeiro. *Pelecanus aquilus* B. Specimen lost No. 3. To be coloured from No. . . . in Log No. . . . ." (D.) " S. Parkinson."

Solander MS. Z4 : 19.

29. ***Phalacrocorax albiventer*** (Lesson), 1831. King Shag.

Pencil sketch, unsigned. " The beak and all the bare part round the eye is a brownish grey—the point only excepted which is whitish the iris of the eyes grey pupil black. the feet something reddish." (B.) " Terra del Fuego. No. 11. *Pelecanus antarcticus.*" (D.) " S. Parkinson."

In the entry in his diary for 27th January, 1769, Banks says: " at noon a shag *Pelecanus antarcticus* came on board the ship and was taken." Solander (MS. Z4 : 15) gives a description of the bird and says that it was dusky black above, white below and that there were two white wing bars. He also gives the measurements and some other details. Dr. R. A. Falla has kindly examined this drawing and Solander's notes, and he says that the bird was clearly a sub-mature individual of the above species.

30. ***Sula bassana serrator*** Gray, 1843. New Zealand Gannet or Takapu.

Unsigned pencil sketch, the head, tail and feet coloured. (B.) " 1. *Pelecanus sectator.* Ahie ne Mauwe." (D.) " S. Parkinson."

According to Solander (MS. Z4 : 17) this bird was taken on 24th December, 1769.

31. ***Phaethon rubricauda melanorhynchos*** Gm., 1789. Red-tailed Tropic Bird.

This plate consists of two paintings, a signed one of the bird in flight, another, unsigned, of its head. " Sydney Parkinson pinx^{t} 1769. Tawai. *Phaëthon erubescens.*" On the lower painting, i.e., that of the head, is written in an unknown hand " on the same Paper with the Bird."

Latham refers to a specimen in Banks's collection. The upper painting has been reproduced in Vol. I of the Hakluyt Society's edition of Cook's journals.

Ellis, f. 48 ; Solander MS. Z4 : 29.

32. ***Larus maculipennis*** Lichtenstein, 1823. Patagonian Gull.

Unsigned pencil sketch. "The beak and feet the colour of minium- the breast and belly white w^{t} a cast of red the same as in the Coccatoo w^{t} the red crest the claws dark brown, the length of the Wing in the natural size 11 inches." (B.) " *Larus gregarius.* Terra del Fuego." (D.) " S. Parkinson."

This sketch was identified by Sharpe as *Larus glaucodes* but in 1925 Dwight pointed out (p. 299) that the names *maculipennis* and *glaucodes* had been given to birds of one and the same species but in different stages of plumage.

Solander MS. Z4 : 35.

33. ***Gygis alba candida*** Gm., 1789. White Tern.

Unsigned pencil sketch. " Eperai. The whole bird intirely white the beak a lead colour, as are also the toes, the webs between white the Rachi of the wing feathers pale brown and those of the tail black." (B.) " No. 2 Egg Bird." (S.) " Otahite." (D.) " S. Parkinson."

This species was represented in the Leverian Museum. A bird belonging to another race of the species was drawn by Ellis (f. 56) at Christmas Island in 1778.

34. ***Ptilinopus purpuratus*** (Gm.), 1789. Latham's Purple-crowned Pigeon.

Unsigned painting, the colouring of the feet has not been completed. " Oopau." (D.) " Parkinson." (B.) " No. 4. Green Dove." (S.) " Otahite." (*Al.*) " *Columba porphyracea* Forster *purpurata* S.N.XIII n. 64."

A specimen from Tahiti was in the Leverian Museum.

Forster, f. 140.

35. ***Gallicolumba erythroptera*** (Gm.), 1789. Latham's Garnet-winged Pigeon.

Unsigned, partly coloured, pencil drawing. " Amāhò. The red on the neck brighter some of a fine shiny purple." (B.) " No. 1 *Columba pectoralis.*" (S.) " Otahite." (*Al.*) " Latham 2 p. 624 n. 12. *Columba erythroptera* S.N.XIII 775 n. 10." (D.) " S. Parkinson."

Notes on this species are given under Forster's f. 136.

M.E. 30.

36A. ***Ramphocelus bresilius*** (Linn.), 1766. Brazilian Tanager.

Unsigned pencil sketch, with some touches of bright red. " The whole wings and tail black a little inclining to brown, the feathers of the Back at their bases are black and their edges scarlet which makes it look darker—the scarlet of the Belly is more yellow than the rest. the legs fusca the beak black excepting the oblong space mark'd of on the base of the under mandible which is white." (D.) " S. Parkinson." (B.) " No. 1. Rio Janeiro. Preserv^{d} dry in Box no. . . . ." (*Al.*) " *Loxia mexicana.*"

Sharpe identified this as a drawing of *Xipholena atropurpurea* but this is incorrect; it is quite a good representation of the above tanager.

36B. ***Turdus magellanicus*** P. P. King, 1830. Magellanic Thrush·

Unsigned pencil sketch. (D.) " S. Parkinson." (B.) " No. 11. *Turdus*. Terra del Fuego."

This sketch agrees very well with pl. 14, *Cat. Birds British Museum*, **5**.

37A. ***Sporophila caerulescens*** (Vieill.), 1817. Screaming Seedeater.

Unsigned painting of a male bird, only the eye is uncoloured. (D.) " S. Parkinson." (B.) " No. 2. Rio de Janeiro. Case no. . . . ."

Vieillot based his description on notes from de Azara ; see f. 7.

37B. ***Volatinia jacarina*** (Linn.), 1766. Blue-black Grassquit.

A charming signed painting of the bird on a stem of grass. " Sydney Parkinson pinx^{t} ad vivum 1768. *Loxia nitens.*" (B.) " Brasil. Of the Coast of Brasil Nov. 8th, 1768."

Solander MS. Z4 : 119.

38A. ***Motacilla flava*** Linn., 1758. A young Yellow Wagtail.

Signed painting. " Sydney Parkinson pinxt. 1768 *Motacilla avida.*" (B.) " Sept^{r} 28, 1768. Lat. 19.00°. north."

Banks and Solander tell us that this bird flew on board (MS. Z4 : 121). Ellis, f. 91.

38B. ***Oenanthe oenanthe*** (Linn.), 1758. European Wheatear.

Signed painting. " Sydney Parkinson pinx^{t} ad vivum 1768 Sept. T10.P.6. Sept. 4. 1768. *Motacilla velificans.*" (B.) " Off the coast of Spain."

Solander MS. Z4 : 123 ; Ellis, f. 90.

An additional drawing by Sydney Parkinson from Cook's first voyage, bound with some of his other natural history drawings in Brit. Mus. (Print Room) vol. 199* B 1, f. 52.

Pterodroma mollis feae (Salvadori), 1899. Soft-plumaged Petrel. (Pl. 36b.)

Signed painting. " Sydney Parkinson pinxt. 1768." (B.) " Oct 7 1766 Lat. . . . north."

According to Banks's diary this bird was taken at 6° 50′ N. 23° 46′ W. on 15th October, 1768, to the south of the Cape Verde Islands. Banks says that he shot " a bird of the shearwater kind . . . it prov'd to be not describ'd ; it was about as large as the Common, but it differ'd from it in being whiter, especially about the face. Call'd it *Procellaria crepidata,* as its feet were like the gulls shot last week, black without but white near the leggs." In Solander's description of it (MS. Z4 : 87) which was published in full by Mathews (1912 : 164–165), he states " Habitat intra tropicos ", and refers to a plate which Mathews was unable to find. The date on the back seems quite irrelevant. At that time Banks was at Croque on the Newfoundland coast, where this petrel does not occur.

Dr. W. R. P. Bourne comments (personal communication) that the figure is an excellent likeness of *P. mollis,* and lacks dark shoulder patches, a character of the light phase of the North Atlantic race *feae* ; in a separate pencil sketch, to scale, the bill is 27 mm. long, which is close to the mean, 27·8 mm., for the subspecies.

An abridged version of Banks's diary was published in 1896 by J. D. Hooker, and in it the description of *Procellaria crepidata* quoted above. The name had, however, been published by Gray in 1844, from Solander's MSS., as a synonym of *P. melanopus* Gm., and must therefore be regarded as a *nomen nudum.*

7. BIRDS PAINTED BY GEORG FORSTER ON COOK'S SECOND VOYAGE, 1772–75

Forster's Paintings (140) *Contained in Vol.* 1 *of His Unpublished Drawings in Brit. Mus.* (*Nat. Hist.*) *Zoology Library, ff.* 32–168.

Most of these water-colour drawings which are now in the British Museum (Natural History), are unsigned, the " Ge. Forster " on the bottom left hand corner having been added later by Dryander. Georg Forster, however, often named and dated the drawing, sometimes adding the vernacular name and the locality ; the locality is not always in his hand but was now and then written on the back or the front of the drawing by his father. I have not noted the position of the MS. notes, nor have I tried to attribute authorship to the later comments, to the references to Latham's publications, or to Gmelin's edition of the *Systema Naturae* etc. We have, fortunately, a photographic copy of the fragmentary diary (now in the Muséum d'Histoire Naturelle, Paris), kept by Georg Forster during the first part of the voyage, which has been of great assistance in deciding which comments were in his hand ; a photograph of a letter written by his father to Linnaeus in 1775 has also been used as a guide. I feel sure that in spite of these aids I must have made some mistakes in attribution which would be obvious to an expert in calligraphy, but I hope that by calling attention to the various people who have annotated these drawings some misconceptions about localities of some of the specimens collected on this voyage will be cleared up. In many cases where no locality has been mentioned it has been possible to trace it by reference to the *Descriptiones Animalium,* edited by Lichtenstein from Reinhold Forster's notes, and published in Berlin in 1844 : It is referred to only by date and page number in the following notes. The descriptions in it often begin with the date, the scientific name and then, in brackets, *Fig. pict. G.* Whether this makes the drawing the type seems doubtful.

Ff. 82, 87 (head only) and 95 are being reproduced in Vol. 2 of the Hakluyt Society's edition of Cook's journals.

32. ***Sagittarius serpentarius*** (J. F. Miller), 1779. Secretary Bird.

Unsigned painting, made at the Cape of Good Hope in 1775 (1844 : 396). (D.) " Ge. Forster, the background by Hodges." (*Al.*) " *Falco sagittarius, serpentarius*, S.N.XIII, 250 " is lightly pencilled across the front.

The painting is slightly stained, possibly by rain when it was being painted, as the background shows a very stormy sky. We do not know the origin of Miller's specimen but Latham (1781 : 31) says that his own description is drawn from three birds he had seen in captivity in England, two of which had later been given to the Leverian Museum.

*33. ***Polyborus plancus plancus*** (J. F. Miller), 1777. Southern Caracara.

Unsigned painting of a bird collected on 26th Dec., 1774, in Terra del Fuego (1844 : 321). " *Falco Plancus*." (J. R. F.) " [T]erra del Fuego." (D.) " Ge. Forster. published by J. F. Miller tab. 17." (*Al.*) " S.N.XIII, 257, Lath. 34, n.9."

Miller's published plate (1777 : no. 17), a close copy of this one, shows the date 1776 on the rock on which the bird is perched ; this painting appears to be the type of the species. No reference to a specimen is made by Miller or Latham (1781 : 34).

34. ***Phalcoboenus australis*** (Gm.), 1788. Forster's Caracara.

Finished painting. " Statenland, Jany. 3rd. 1775." (J. R. F.) " *Falco leucurus*." (*Al.*) "—*australis*, S.N.XIII, 259. Lath.40, n.19." (D.) " Ge. Forster."

Latham's notes on this bird were based on J. R. Forster's information but apparently he did not see this drawing. Forster himself was not sure whether this bird was the female of *Polyborus plancus*, or a different species (1844 : 323).

*35. ***Accipiter novaehollandiae novaehollandiae*** (Gm.), 1788. White Goshawk.

Unsigned pencil sketch of a bird captured by Captain Furneaux in Tasmania in the late summer of 1773, before he joined Captain Cook at Queen Charlotte's Sound in New Zealand (1844 : 70). " *Falco leucaëtos*, New Holland." (J. R. F.) " Van Diemen's Land." (D.) " Ge. Forster." (*Al.*) "—novae hollandiae S.N.XIII : 264. New Holland White Falcon Lath. p. 50. n. 18."

The drawing was made from the dried skin. Latham says that he was indebted to J. R. Forster for his account.

36. ***Falco novaeseelandiae*** Gm., 1788. New Zealand Bush Hawk or Karearea.

An unsigned, unfinished painting of a sub-mature female collected 4th April, 1773 (1844 : 68). " *Falco Harpe. mas adultus*. Irides dark brown." (J. R. F.) " New Zealand Charlotte's Sound." (D.) " Ge. Forster." (*Al.*) "—*nova Seelandia* S.N.XIII. 268."

Latham's notes on this species were based on specimens in the Leverian and the British Museums. Mr. Graham Turbott kindly drew my attention to the fact that Forster had mistaken the sex of these birds.

37. ***Falco novaeseelandiae*** Gm., 1788. New Zealand Bush Hawk or Karearea.

Unsigned, unfinished painting of a young female collected in Dusky Sound. "*Falco Harpe mas junior*." (J. R. F.) "New Zealand Dusky Bay." (D.) "Ge. Forster." (*Al.*) "—*nova Seelandia* S.N.XIII, 268."

38. ***Falco novaeseelandiae*** Gm., 1788. New Zealand Bush Hawk or Karearea.

Unsigned but finished painting of an old male. "*Falco Harpe. Fem.* Kare-area. N.Z. Charlotte's Sound." (D.) "Ge. Forster." (*Al.*) "—*nova Seelandia* S.N.XIII. 268."

39. ***Ninox novaeseelandiae novaeseelandiae*** (Gm.), 1788. Morepork or Ruru.

Finished painting, unsigned, of a bird collected 30th May, 1773 (1844 : 71). "*Strix fulva.* heroòroo. Queen Charlotte's Sound, N.Z." (*Al.*) "—*nova Seelandia* S.N.XIII : 296. Latham p. 149 no. 39."

Latham acknowledges his debt to J. R. Forster for his notes on this bird.

40. ***Artamus leucorhynchus*** (Linn.), 1771. White-breasted Wood Swallow.

Unsigned painting of one of the birds collected from shrubs on the shore of New Caledonia (1844 : 272). "*Loxia ? melaleuca.* Poemanghee. Sept. 7th. ☿ 1774." (D.) "Ge. Forster." (*Al.*) "*Lanius leucorhynchus* S.N.XIII : 305."

41. ***Laniarius ferrugineus ferrugineus*** (Gm.), 1788. Cape Boubou Shrike.

Unsigned painting of a bird collected at the Cape of Good Hope in 1775 (1844 : 398–399). (J. R. F.) "Cape of Good Hope." (D.) "Ge. Forster." (*Al.*) "*Lanius cafer.* Lath. 163 n. 8. —*ferrugineus* S.N.XIII : 306."

Lichtenstein (1844, *loc. cit.*), in a footnote, says that Forster is describing Latham's *Lanius boulboul* but his notes on colour clearly apply to *L. ferrugineus.* Latham described this species from specimens in the collections of Miss Blomefield and Banks (1781 : 164).

42. ***Prosopeia tabuensis tabuensis*** (Gm.), 1788. Red-breasted Musk Parrot.

Unsigned painting. "Octob. 12, 1773. *Psittacus hysginus.*" (J. R. F.) "Tonga Tabboo." (D.) "Ge. Forster." (*Al.*) "Lath. p. 214. n. 16. —*tabuensis* S.N.XIII : 317. n. 56. amsterdam.

The bird depicted was apparently taken at Eua in the Tonga group (1844 : 159). It lacks the conspicuous blue collar of the type specimen in the Leverian Museum which was described and illustrated by Latham and given a binomial by Gmelin. No blue collar was mentioned by Forster, neither does it appear in the painting by Ellis (f. 11) of another bird from Eua nor in one which was sent to the Edinburgh University Museum (Jardine & Selby, 1829 : pl. 74) apparently with no note of its locality. Jardine & Selby state that they knew of only three specimens : one of which was the type in the Leverian Museum which eventually went to Vienna (von Pelzeln, 1873 : 30) ; another belonged to a Mr. Leadbeater ; the third, in Edinburgh, may have been a later acquisition, possibly presented in 1826 by Dr. MacLeod who then gave a number of birds from New Zealand and other parts of the Pacific. Latham, writing to Sir William Jardine on 9th September, 1831, stated that he had examined only two specimens (letter with Sir Norman Kinnear). Sharpe (1906 : 199) believed that the bird figured by Ellis could not be identified as *P. tabuensis* on account of the absence of the blue collar. He pointed out that Salvadori (1891 : 496) had suggested that Forster's plate, which agrees with Ellis's, represented *P. koroensis* Layard (currently the race of *tabuensis* from the island of Koro in the Fiji group). More recently, however, Amadon (1942*a* : 10) has shown that a few birds taken by later explorers on Eua have the blue collar reduced to the same extent as in *P. tabuensis koroensis*. He goes on to lend support to a statement by Salvadori (1891 : 495) that *tabuensis* was introduced into Eua from Fiji and he suggests that the present population of Eua may thus be a hybrid one. In the light of this, that population may conveniently be regarded as belonging to the nominate race, *Prosopeia tabuensis tabuensis*. Amadon states that this species was actually taken by Cook's naturalists on the island of Tongatabu. This, however, appears doubtful. Although " Tonga Tabboo " is pencilled on the back of Georg Forster's drawing in what I take to be J. R. Forster's hand, the latter states categorically (*op. cit.* : 159) " Habitat in insula Eaoowe ubi unum eius specimen emi."..Cook was at Eua on the 2nd and 3rd of October, 1773, and at Tonga from the 4th to the 7th ; this painting was made at neither place as on 12th October, the date pencilled on the plate, the *Resolution* had been at sea for five days, on her way to New Zealand.

43. ***Eunymphicus cornutus*** (Gm.), 1788. Crested Parakeet.

Unsigned painting, not quite finished. " *Psittacus bisetis.* N. Caledonia. 11th September. 1774." (D.) " Forster." (*Al.*) " Lath. p.248, n.48. —*cornutus* S.N.XIII : 327. n. 81."

Latham refers to a fine and perfect specimen in Banks's collection, which he believed to be the only one in England (1781 : 248).

A. J. Cain (1955 : 432) considers that *Eunymphicus cornutus* is congeneric with *Purpureicephalus spurius* (Kuhl) of south-western Australia, and that *Eunymphicus* therefore should be regarded as a synonym.

P.R.20, 64 ; A.M.3.

44. ***Cyanoramphus novaezelandiae*** (Sparrm.), 1787. Red-fronted Parakeet or Kakariki.

Unsigned pencil sketch. " *Psittacus pacificus* N.Z." (D.) " Ge. Forster." (*Al.*) " Latham p. 252–56. S.N.XIII : 329. n. 88."

See also ff. 45, 46, A.M.2 and Ellis f. 12.

45. ***Cyanoramphus novaezelandiae*** (Sparrm.), 1787. See pls. 44 and 46.

Unsigned pencil sketch. " *Psittacus pacificus* Var. N.Z. S.C.Q.C.S.N.Z. 6 N. 1774." (D.) " Ge. Forster." (*Al.*) " Latham p. 252–56. β. S.N.XIII : 329. n. 88."

The letters in Georg Forster's hand refer to Queen Charlotte's Sound, New Zealand, where Cook stayed for about three weeks in October and November 1774. J. R. Forster states that this parakeet occurs throughout the South Island of New Zealand (1844 : 73).

46. ***Cyanoramphus novaezelandiae*** (Sparrm.), 1787. See ff. 44, 45.

Unsigned painting. " *Psittacus pacificus* Varietas N.Z. Dusky Bay. April 5th. 1773. Kagha-areeku." (D.) " Ge. Forster." (*Al.*) " Lath. p. 252, n. 56. β.S.N.XIII : 329. n.88."

47. ***Cyanoramphus zealandicus*** (Latham), 1790. Red-rumped Parrot.

Unsigned painting of a bird taken at Tahiti in 1774 (1844 : 238). "*Psittacus pacificus.* Var. *Tropicorum.* Tahaitee." (D.) "Ge. Forster." (*Al.*) "γ S.N.XIII : 329. Latham as well as Forster seems to confound this with a New Zealand Parrot."

Salvadori mentions this drawing (1891 : 580) in the synonymy of *Cyanoramphus erythronotus* (Kuhl) 1820 which Peters regards as synonymous with *C. zealandicus.* Sharpe's remarks (1906 : 181) are not accurate as he remarks that Salvadori identifies it as *C. auriceps* (Kuhl) 1820 which is not the case ; he makes another slip in saying that it is Var. C of Latham's Pacific Parrot (1781 : 253) instead of Var. B which, as he says, was distinguished by its red rump. Var. C was a New Caledonian bird, and Latham's description agrees well enough with that of *C. novaezelandiae saisseti* Verreaux & Des Murs 1860. Latham saw a fine specimen of *C. zealandicus* in Banks's collection (1781 : 249) and thought that it came from New Zealand ; confusion of localities seems to have prevented him from identifying the bird he discusses on p. 253 with that which he describes in detail on p. 249. J. R. Forster, as far as one can judge from the notes on the paintings, did not confuse the New Zealand (ff. 44–46) and Tahitian birds, but thought that the latter was a variety of the former ; however when Lichtenstein published his MS. two species were described as *Psittacus pacificus,* the New Zealand one on pp. 73–74, and the Tahitian one on p. 238. *C. zealandicus* apparently became extinct about 1844 when a specimen was taken by Lieutenant de Marolles (Rothschild, 1907 : 69).

Parkinson, f. 8.

48. ***Charmosyna palmarum*** (Gm.), 1788. Green Palm Lorikeet.

Unsigned painting of a specimen collected in Tanna, New Hebrides (1844 : 259). "*Psittacus palmarum.* Tanna. 16th Aug. 1774." (D.) "Ge. Forster." (*Al.*) "Lath. p.253 n.57. S.N.XIII : 329. n.89."

The male and female of this species were described as *Psittacus palmarum* and *P. pygmaeus,* respectively, by Gmelin (1788 : 329–330), the description of the latter being based on Latham's Pygmy Parrot (1781 : 256) a specimen of which was in the Leverian Museum and was said to have come from Tahiti. Latham's type, labelled "from Botany Bay" in the sale catalogue of the Leverian Museum, went to Vienna (von Pelzeln, 1873 : 31 ; Sassi, 1928 : 53). *C. palmarum* is now confined to the New Hebrides and some nearby islands, and it seems most improbable that it ever occurred in Tahiti. J. R. Forster (*loc. cit.*) gives only Tanna as the habitat. Amadon considers *Charmosyna* to be a subgenus only and places this species in *Vini* (1942 : 2).

49. ***Vini peruviana*** (P. L. S. Müller), 1776. Tahitian Blue Lory.

Unsigned painting of a bird collected in Tahiti in 1773 (1844 : 201). The colours here appear to have deteriorated with time. "*Ps. sapphirinus* Taheitee." (*Al.*) "Latham p. 255, 59. *Psittacus taitianus* S.N.XIII : 329. n. 91."

One of these birds was in the Leverian Museum. Full notes on the species are given under Parkinson's f. 9.

M.E. 12 ; Webber, f. 140 ; Ellis, f. 14.

50. ***Nestor meridionalis meridionalis*** (Gm.), 1788. Green Kaka.

Unsigned painting of a bird collected in the South Island of New Zealand in 1773 (1844 : 72). " *Psittacus hypopolius*. Kaghaa. N.Z. Dusky Bay." (D.) " Ge. Forster." (*Al.*) " Latham p. 264–70. —*meridionalis* S.N.XIII : 333.n.98."

Latham's account was of a bird in the Leverian Museum.

A.M. 1 ; P.R. 13 ; Ellis, f. 15.

51. ***Agapornis cana cana*** (Gm.), 1778. Grey-headed Lovebird.

Unsigned painting of a bird from Madagascar (1844 : 399). " *Psittacus* May 4th. 1775. Madagascar." (D.) " Forster." (*Al.*) "—*cinereocephalus* mas Brisson. *Poliocar* Forst. Lath. p.315, n.122. *canus* S.N.XIII : 350. n.131."

Georg Forster drew this from a living bird, probably in the extensive menagerie at the Cape of Good Hope. Latham saw one in the Leverian Museum.

52. ***Callaeas cinerea*** (Gm.), 1788. Orange-wattled Crow or South Island Kokako.

Unfinished painting of a bird collected at Queen Charlotte's Sound, New Zealand. " *Callaeas cinerea*. S.C.Q.C.S.N.Z. 4 3d N. 1774." (D.) " Ge. Forster." (*Al.*) " Lath. ind. ornithol. 149. Wattlebird Lath.1 p.364. t. 14. *Glaucopis cinerea* S.N.XIII : 363."

One of these birds was in the Leverian Museum. J. R. Forster states that it occurs in both islands of New Zealand ; this comment appears more than once in his notes on New Zealand birds although he did not visit the North Island ; the *Adventure* did, however, and it seems that Captain Furneaux may have brought him skins of the northern species from Poverty Bay. It is quite certain that Banks and Solander collected birds from the North Island as they refer to their fine specimens but there is a curious blank in surviving MSS. from that point of view.

M.E. 6 ; P.R. 12 ; A.M. 19.

*53. ***Graucalus caledonicus*** (Gm.), 1788. New Caledonian Cuckoo-shrike.

Unsigned painting of a specimen taken 7th Sept., 1774 (1844 : 260). " *Corvus cinereus*. N. Caledonia." (D.) " Ge. Forster." (*Al.*) "—*caledonicus* S.N.XIII : 367. Lath. p. 377. n. 7."

This painting is the type since Latham (1781 : 377) tells us that he described the bird from a drawing in the collection of Sir Joseph Banks.

M.E. 14 ; P.R. 19 ; A.M. 6.

54. ***Aplonis striatus*** (Gm.), 1788. Glossy Starling.

Unfinished painting of both a male and female collected 8th Sept., 1774 (1844 : 261). " *Coracias pacifica* foem. mas. N. Caledonia." (D.) " Ge. Forster." (*Al.*) "—*striata* S.N.XIII : 381. Lath. 414. n. 13. tab. 16. Il faut les copier sur deux feuilles les faire de cet grandeur."

Forster's name of *Coracias pacifica* was applied by Latham (1801 : xxvii) to another bird, *Eurystoma orientalis* Linn., but, as Sharpe points out (1890 : 127), he had earlier given a brief description of this starling and reproduced Georg Forster's painting 1781 : 414, pl. 16). This shows the male as a striped instead of an iridescent bird and, as Dr. Cain has suggested to me, Forster was using a standard water-colour technique in employing a brilliant underlay before washing over with a duller colour to give the effect of a sheen. Latham copied this unfinished painting of the male but gives a much better plate of the female although he used the outline of Forster's sketch. He gives no acknowledgment to the Forsters in this instance.

M.E. 37 ; A.M. 30.

55. ***Conopoderas caffra*** ? subsp. Long-billed Warbler.

Unsigned painting of a bird from Tahiti in the Society Group, captured in 1773 (1844 : 163). " Oriolus Musa." (D.) " Ge. Forster." (*Al.*) "Otahaite."

The races of this species and their distribution have been discussed by Murphy & Mathews (1928, 1929). Georg Forster's bird agrees to some extent with *C. caffra caffra* (Sparrm.), 1786 from Tahiti but is larger, the exposed culmen in the drawing being 34 mm. whereas in the birds measured by Murphy & Mathews it is only 25–28 mm. J. R. Forster (loc. cit.) states that the bird was 8½ inches long and the size of a common starling. His measurements were clearly not taken from this drawing of a bird 9¼ inches in length ; furthermore he states that his bird came from Ulietea, i.e. Raiatea, an island in the Society group some way from Tahiti. Murphy & Mathews do not refer to any race from there and it is possible that Forster's description concerns a bird which has since become extinct ; it was apparently meant to refer to the species painted by Georg Forster since the description begins with a note on the drawing. Sharpe thought that it represented *Tatare longirostris* (1883 : 525) *i.e. C. caffra longirostris* (Gm.), 1789.

M.E. 8 ; A.M. 28 ; Webber, f. 139 ; Ellis, f. 76.

56. ***Eudynamis taitensis*** (Sparrm.), 1787. Long-tailed Cuckoo or Koekoea.

Unsigned painting of specimen from Tahiti collected in 1773 (1844 : 161). " *Cuculus fasciatus* Arevā-revā. Taheitee- Tayarabboo." (D.) " Ge. Forster "—almost obliterated. (*Al.*) "—*tahitius* S.N.XIII : 412. Lath. p. 514. n.4."

J. R. Forster gives both Tahiti and Huahine as localities for this species ; the variety he mentions was probably a young bird. Latham saw a specimen in the Leverian Museum. See Mayr (1944) for a discussion of the genus.

*57. ***Chalcites lucidus*** (Gm.), 1788. Shining Cuckoo or Pipiwharauroa.

Unsigned painting of a bird from Queen Charlotte's Sound, N.Z. " *Cuculus nitens* Poopooarouro. New Zealand, Nov. 5 1773. [Qu]een Charlotte's Sound." (D.) " Ge. Forster." (*Al.*) "—*lucidus* S.N.XIII : 421. Latham p. 528-24."

J. R. Forster apparently confused this with the Didric Cuckoo of South Africa, *Lampromorpha caprius* (Bodd.) and in his account gives both Queen Charlotte's Sound and the Cape of Good Hope as localities (1844 : 151). This drawing is the type of *C. lucidus* since Latham's description (1782 : 528, pl. 23) was based on it.

M.E. 36 ; A.M. 5.

58. ***Halcyon venerata venerata*** (Gm.), 1788. Latham's Respected Kingfisher.

Unsigned painting of a bird from Tahiti. " Eroòro at Taheitee." (D.) " Ge. Forster." (*Al.*) " *Alcedo collaris.*"

J. R. Forster states that this bird was found in Tahiti, Huahine, Ulietea (Raiatea) and Otaha ; it is, in fact, confined to Tahiti (Mayr, 1949). The two varieties he mentions from Tonga and Sta. Christina (Tahuata in the Marquesas) were considered by Sharpe (1892 : 262) to belong to *H. sacer*, which, according to Peters (1945), is *H. chloris sacra* (Gm.) 1788—restricted to Tonga by Wetmore. This is true for Var. I; Forster's description of Var. II, however, clearly applies to *H. godeffroyi* Finsch, 1877 from the Marquesas.

Webber, f. 135.

59. ***Halcyon sancta vagans*** (Lesson), 1828. Sacred Kingfisher or Kotare.

Unsigned painting. "*Alcedo cyanea.* ghotarre. N.Z.Dusky Bay. April 4th. 1773." (D.) " Ge. Forster." (*Al.*) "—*sacra* ♂ S.N.XIII : 453. n. 30. Lath. p. 622. n. 12.c."

Although this bird was discovered in 1773 (1844 : 76, 156) it was not until after the French expedition round the world in 1822–25, that Lesson, one of the zoologists on board *La Coquille*, described it.

60. ***Halcyon leucocephala acteon*** (Lesson), 1830. Grey-headed Kingfisher.

Signed painting of one of these kingfishers against an extensive background, with a couple of brightly painted crabs in the foreground. Georg Forster's tiny monogram is painted on a piece of split wood, right centre. " St. Jago. *Alcedo cancrophaga.*" (D.) " Forster." (*Al.*) "*Alcedo senegalensis* S.N.XIII : 456."

J. R. Forster's description of this species (1844 : 4) from the Cape Verde Islands is dated 13th August, 1772.

M.E. 18 ; A.M. 10.

61. ***Prosthemadera novaeseelandiae*** (Gm.), 1788. Tui or Parson-bird.

Unsigned painting of a bird taken in 1773 (1844 : 78). "*Certhia cincinnata.* Q. Charlotte's Sound." (D.) " published by Dr. Forster in Cook's voyage vol. 1, tab. 52." (*Al.*) "*Merops nova Seelandia* S.N.XIII : 464. Lath. p. 682. n. 17."

The earliest illustration of this bird was published by Peter Brown in 1776 who worked from " a stuft specimen in tolerable preservation, in the possession of Marmaduke Tunstall Esq." Tunstall's collection eventually went to Newcastle-on-Tyne but the specimen no longer survives. Latham's specimen of the " New Zealand Creeper " was in the Leverian Museum (1782 : 682). There is a reference in Gadow (1884 : 257) to an illustration of this bird which appeared in Levaillant's *Oiseaux d'Afrique* in 1800 (pl. 92), the specimen having been sent from London to Gigot-D'Orcy, a French Inspector of Mines with interests in natural history; he was a correspondent of Banks. Tuis were taken on board the *Resolution* and lived for many weeks on a diet of sugar and water.

M.E.17 ; P.R. 23, 63 ; A.M. 20 ; Ellis, f. 25.

62. ***Anthornis melanura*** (Sparrm.), 1786. New Zealand Bellbird or Korimako.

Unsigned painting. "*Certhia olivacea* Q. Charlotte's Sound. he-ghôbărra." (*Al.*) "—*sannio* S.N.XIII : 471. Lath. p. 735. n. 39."

It seems possible that this species and the last were described by J. R. Forster from specimens taken in Dusky Sound and not from those painted by his son as the dates of capture given by him are, respectively, 3rd April and 30th March, 1773 (1844 : 78–79). The *Resolution* "was in Dusky Sound from 26th March to 11th May, and in Queen Charlotte's Sound from 18th May to 7th June."

M.E. 33 ; A.M. 22.

63. ***Myzomela cardinalis cardinalis*** (Gm.), 1788. Cardinal Honey-eater.

Unsigned painting, with a pencil sketch of the head and tongue. "*Certhia cardinalis* Tanna. 16th August 1774." (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 472. n.38."

J. R. Forster tells us that the natives of the New Hebridean island where he took this bird, called it Kuyaméta (1844 : 262). There was a specimen in the Leverian Museum.

64. ***Foulehaio carunculata*** (Gm.), 1788. Wattled Honey-eater.

Unsigned painting of a species taken at the Friendly Isles in 1773 (1844 : 165). "*Certhia caruncalata* Tonga Tabboo Amsterdam Isle." (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 472. n. 39."

Georg Forster referred to this species in an article in the *Götting. Mag. Wiss. Lit.* (1780 : 349) but did not publish its scientific name ; his father reported it from both Eua and Tongatabu, and Latham mentioned specimens in the Leverian Museum (1782 : 732). It was still abundant in 1925 when it was collected by the Whitney Expedition from 37 islands in the Tonga group (Mayr, 1932 : 7) ; it also occurs in Samoa and some of the Fijian islands. It is one of the sweetest singers amongst the Polynesian birds.

*65. ***Chloephaga picta picta*** (Gm.), 1788. Upland Goose.

Unsigned painting of a bird taken on New Year's Island off Statenland. "*Anas picta* [Stat]enland. Jany. 2d. 1775." (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 504. Lath. 443.n.9."

Gmelin based his description on Latham's account of the Painted Goose (1785 : 443) which was founded on a drawing in Banks's collection so that this is the type.

66. ***Chloephaga hybrida hybrida*** (Molina), 1782. Kelp Goose.

Unsigned painting of an adult female, with the white male swimming in the distance, collected at New Year's Island, off Statenland (1844 : 336–338). "*Anas Ganta.* Terra del Fuego. 1774", a further date is illegible. (D.) "Ge. Forster." (*Al.*) "*Anas antarctica* S.N.XIII : 505. n. 57. Lath. 442.n.7 . . . comes nearest to *A. magellanica* S.N.XIII 56."

A female of the species was in the Leverian Museum.

A.M. 34.

*67. ***Casarca variegata*** (Gm.), 1789. Paradise Duck or Putangitangi.

Unsigned painting of the female. "*Anas Cheneros.* Pooa dugghie dugghie. No. 24. Dusky Bay. N.Z. April 7th. 1773." (D.) "Ge. Forster." (*Al.*) "*—variegata* S.N.XIII : 505. n. 58. Lath. 441. n. 6."

Latham used this drawing as the basis of his description (1785) and it therefore is the type. J. R. Forster describes both the male and the female (1844 : 92).

68. ***Tachyeres pteneres*** (Forster), 1844. Magellanic Flightless Steamer Duck.

Unsigned painting. "—nd. Statenland. January 2d. 1775. *Anas pteneres* [*brachyptera* has been crossed out]. The English Seamen call this Bird Racehorse." (*Al.*) "—*cinerea* S.N.XIII : 506. n.60. Lath. 439.n.16."

Forster's account is a detailed one (1844 : 338), Murphy (1936 : 957) considers that his remarks on the plumage, size and habits refer to the flightless species *T. pteneres*, but that his notes on wing span and body length may apply to the smaller Steamer Ducks which have not lost the power of flight.

69. ***Casarca cana*** (Gm.), 1789. African Shelduck, Berg-eendt.

Unsigned pencil sketch with the colours written over the drawing. J. R. Forster has dated his notes on this bird November, 1772 (1844 : 44) when the *Resolution* called at Capetown for provisions, and Sparrman joined the Forsters as an additional naturalist. He gives Schumacher as the artist of this and the following sketch, not that they reflect much credit on him. It is possible that this pencil sketch represents the female since there is a line of demarcation on the head which has no colour written on the area it encloses and was possibly intended to be left white. "*Anas montana*. Cape." (*Al.*) "Probably *Anas cana* S.N.XIII : 510. cf. Lath. p. 458 n. 19. Bergenten."

The remains of Dryander's ascription to Forster can just be made out in the bottom left-hand corner. Latham confused the sexes ; there was at least one specimen in the Leverian Museum (1785 : 458).

70. ***Casarca cana.*** See f. 69.

An unfinished wash drawing, apparently intended to represent the male African Shelduck since the head is grey and no white is shown on it.

The MS. notes are the same as those on the last plate save that the vernacular name is spelt Bergendt.

*71. ***Anas georgica*** Gm., 1789. South Georgia Teal.

Unsigned painting of a specimen collected at South Georgia (1844 : 342) when this island was discovered on the homeward voyage in 1775. "*Anas xanthorhyncha* Jan. 17. 1775. South Georgia." (D.) "Ge. Forster." (*Al.*) "—*georgica* S.N.XIII : 516. Lath. 478. n. 34."

Latham's account (1785) of this species was based on this drawing which is therefore the type.

72. ***Anas undulata undulata*** Dubois, 1837. Yellow-billed Duck.

Unfinished wash drawing of a bird seen at the Cape of Good Hope on the outward journey, November, 1772. "*Anas xanthorhyncha. Capensis*. Cape of Good Hope." (D.) "Ge. Forster." (*Al.*) "—*georgica* S.N.XIII : 516. Lath. 478."

J. R. Forster considered that this was a variety of the South Georgia Teal (1844 : 45, 342).

73. ***Anas erythrorhyncha*** Gm., 1789. Red-bill Teal.

Unsigned painting of a duck which, like the last, was collected at the Cape of Good Hope on the outward journey (1844 : 45). "*Anas pyrrhorhyncha* Cape of Good Hope." (D.) "Ge. Forster." (*Al.*) "—*erythrorhyncha* S.N.XIII : 517. Lath. 507. n. 52."

Latham mentions neither specimen nor drawing in his account of the species.

74. **Hymenolaimus malacorhynchos** (Gm.), 1789. New Zealand Blue Duck or Whio.

Unsigned painting. "*Anas malacorhyncha.* Dusky Bay. April 3d. 1773. he-weėyo." (D.) "Ge. Forster." (*Al.*) "—*os* S.N.XIII : 526. Lath. 522. n. 67."

There is the beginning of a pencil sketch, perhaps of Dusky Sound, on the back. Latham apparently described this bird (1785 : 522) from the accounts of the voyage published by Cook and Forster. Forster's description is on p. 94 of the *Descriptiones Animalium.*

*75. **Anas capensis** Gm., 1789. Cape Wigeon.

Finished painting, signed "G.F.1773", of this South African duck collected on the outward journey (1844 : 46). "*Anas assimilis.* Cape Good hope." (*Al.*) "—S.N.XIII : 527 Lath. 519. n. 64. *capensis* Smith."

This is the type since Latham based his account (1785) of the bird on it. For a note on Forster's date see f. 112.

76. **Dendrocygna viduata** (Linn.), 1766. White-faced Duck.

Unfinished and unsigned painting of a bird which does not appear to have been recorded by J. R. Forster. "*Anas viduata* Linn. Cape of Good Hope." (*Al.*) "S.N.XIII : 536."

Some writing on the bottom left-hand corner has been worn away.

*77. **Anas superciliosa superciliosa** Gm., 1789. New Zealand Grey Duck, or Parera.

Unsigned painting of a specimen taken in 1773 (1844 : 93). "*Anas leucophrys* he-Tārrera. drawn in Dusky Bay and to be found in Charlotte's Sound." (*Al.*) "—*superciliosa* S.N.XIII : 537. Lath. 497.n.45."

The bird is also outlined on the back of the sheet. This painting was the basis of Latham's account (1785) and is therefore the type of the species.

78. **Anas specularioides specularioides** King, 1828. Crested Duck.

Unsigned painting. "*Anas lophyra* [*cristatella* crossed out]. Staten Land. Jany. 2d. 1775." (D.) "Ge. Forster." (*Al.*) "—*cristata* S.N.XIII : 540. Lath. 543. n.81."

See J. R. Forster (1844 : 340).

*79. **Nyroca novaeseelandiae** (Gm.), 1789. New Zealand Scaup, Black Teal or Papango.

Unsigned painting of the male, taken in 1773 (1844 : 95). "*Anas atricilla* he-pầtek Dusky Bay." (D.) "Ge. Forster." (*Al.*) "—*nova Selandia* S.N.XIII : 541. Lath. 543. n. 80.

Latham's account (1785) of the species was based on this painting which is therefore the type.

80. **Eudyptes chrysolophus schlegeli** Finsch, 1876. Royal Penguin.

Unsigned and unfinished pencil sketch of a penguin collected by one of Captain Furneaux's sailors in Adventure Bay, Tasmania, March, 1772 (J. R. Forster, 1781). "*Aptenodytes chrysocoma*—van Diemens Land." (D.) "Ge. Forster *Aptenodytes chrysocome.* J. R. Forster in *Commentat. Gotting.* 3. p. 135." (*Al.*) S.N.XIII : 555. n.1."

This sketch has been much discussed and I am indebted to Dr. R. A. Falla for kindly examining it and giving the above identification. He points out that it might possibly represent the Macaroni Penguin *Eudyptes chrysolophus chrysolophus*

Brandt, 1827 but that there is nothing to suggest that the bird's throat was black. Moreover the Macaroni Penguin has not been recorded from Tasmania whereas the Royal has been noted on several occasions (Cashion, 1953).

J. R. Forster tells us that the bird lived for some days after being captured and that he examined and described the skin which, when stuffed, was drawn by his son. He commissioned J. F. Miller to make a painting of a skin from the Falkland Islands, thinking that it belonged to the same species as the bird collected in Tasmania ; from this painting of Miller's an engraving was made and published in the *Comm. Gott.* (1781) with the name of *Aptenodytes chrysocoma.* The accompanying description included characters of both the Royal and Macaroni Penguins as well as of the Rock-hopper *Eudyptes crestatus crestatus* Miller, 1784. Miller's painting was published in 1784 with references to Forster's publication and localities. Mathews & Iredale (1921*a*) reviewed the nomenclature and decided that *chrysocoma* Forster was too much of a mixture to be safely used. They thought that Forster's drawing represented the Thick-billed Penguin *Eudyptes pachyrhynchus* G. R. Gray but the crest and bill are clearly not characteristic of this species. The names of the three species confused by J. R. Forster are therefore those given above.

81. ***Aptenodytes patagonicus*** J. F. Miller, 1778. King Penguin.

Unsigned painting of a male taken at South Georgia. " *Aptenodytes patachonica* [*hyperpolius* crossed out] Jany. 17th. 1775. 36 inches high." (D.) " Ge. Forster *Aptenodytes patachonica* J. R. Forster in Comm. Cotting. 3. p.137. published by Mr. Pennant in his genera of birds tab. 14." (*Al.*) " S.N.XIII : 556.n.2."

Both Cook and J. R. Forster commented on the large size of the penguins taken at South Georgia and their remarks have sometimes been interpreted as evidence that Emperor Penguins were also found ; Cook, however, who says that they were the largest he had ever seen, gives their weight as 29 to 38 lb. and Forster as about 40 lb. Since the recorded weights of adult Emperors range from 57 to 94 lb. it seems clear that none of the latter species was observed.

Miller's plate of *A. patagonicus* was antedated by one published in 1776 by Sonnerat in his *Voyage à la nouvelle Guinée.* King Penguins have never been recorded north of New Zealand and Tasmania, and it is only stragglers that occasionally occur in these two countries. Sonnerat had, in fact, published a drawing by Jossigny, draughtsman to Commerson, the gifted naturalist who accompanied Bougainville on his voyage round the world, 1767–69. Commerson had collected extensively in and about the Straits of Magellan and appears to have found King Penguins there ; according to Murphy they were once resident in that region (1936 : 344). Commerson did not return to France with Bougainville but remained in Mauritius where he died in 1773. Some of the drawings of South American birds that he had left were used by his recently acquired assistant, Sonnerat, to illustrate his own book on New Guinea, a country he had never actually visited ; this proceeding led to some confusion. Sonnerat gained some credit for having assisted his uncle Poivre, Intendant of Mauritius, to break the Dutch spice monopoly, and his lack of scruple over Commerson's material seems to have been overlooked by most of his contemporaries although Cuvier was aware of it (Lysaght, 1952).

Miller's plate is very close to this one of Forster's but since Latham refers to specimens in both the Leverian and the British Museums (1785 : 563) we cannot be sure that Miller based his description on this drawing and not on a specimen.

P.R. 9 ; Ellis, f. 46 ; Webber, f. 124.

82. ***Pygoscelis antarctica*** (Forster), 1781. Bearded Penguin.

Unsigned painting of a penguin against a background of sea and ice, taken in December 1772 or January 1773 (1844 : 56–58). "*Aptenodytes antarctica* Indian Ocean South of Kerguelens Land. about 2/3 natural size." (D.) "Ge. Forster. *Aptenodytes antarctica* J. R. Forster in *Commentat. Gotting*. 3. p. 144. tab. 4 this figure." (*Al.*) "S.N.XIII : 557. n. 4."

J. R. Forster noted that this species was usually gregarious and that it was commonly to be found on ice floes far from land. See also f. 101.

A.M. 50.

83. ***Spheniscus magellanicus*** (Forster), 1781. Magellan Penguin.

Unsigned painting. "*Aptenodytes magellanica* very near natural size Staten Land." (D.) "*Aptenodytes magellanica* Forster in *Comm. Gott*. 3. p.143. tab. 5. this figure. Published by J. F. Miller tab. 34." (*Al.*) "S.N.XIII : 557 n.5."

Many thousands of these penguins were reported by J. R. Forster at New Year's Island, off Statenland, (1844 : 351–352) in January 1775, when this one was taken.

84. ***Eudyptula minor*** (Forster), 1781. Little Blue Penguin or Korora.

Unsigned painting of a bird belonging to a species discovered at Dusky Sound, New Zealand, 31st March, 1773 (1844 : 101). "*Aptenodytes minor* New Zealand." (D.) "Ge. Forster. *Aptenodytes minor* J. R. Forster in *Commentat. Gotting*. 3. p.147." (*Al.*) "S.N.XIII : 558. n. 9."

The whole upper surface here is brownish-black; the bird depicted is smaller than that in the next painting, which is slaty-blue above.

P.R. 8.

85. ***Eudyptula minor*** (Forster), 1781.

Unsigned painting ; the MS. notes correspond to those on f. 84 but the Maori name of the bird, Korôra, has been added.

This may be the Cook St. subspecies.

86. ***Halobaena caerulea*** (Gm.), 1789. Blue Petrel.

An unsigned, fully-coloured painting of one of these petrels in flight, probably the specimen taken on 28th Dec., 1772 as J. R. Forster gave this date and noted a painting by his son when he described the species (1844 : 59). "*Procellaria similis*. Southern Ocean"; there is also an indecipherable note which appears to be in Georg Forster's hand. Dryander's ascription of the drawing to him has been almost trimmed away.

J. R. Forster pointed out (*loc. cit.*) the superficial resemblance between this species and *Pachyptila vittata* (next folio) but stated that they were clearly different ; the drawing shows the characteristic white tips of the rectrices. According to Latham there was a specimen of the Blue Petrel in the British Museum.

A.M. 40.

87. ***Pachyptila vittata*** (Forster), 1777. Broad-billed Whale Bird.

This is an unsigned painting of one of these birds with outstretched wings, from above; there is also a side view of the head with the beak wide open to show the tongue and the laminae of the upper mandible. "*Procellaria vittata.* Southern Ocean." (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 560. n. 10."

J. R. Forster gives a clear account of the bill, describing the laminated structure of the upper mandible and the pouch between the rami of the lower one (1844 : 22). His son's painting was reproduced on a small scale, without the drawing of the head, in the *Penny Cyclopaedia* for 1840 (**18** : 47) where there is a long and interesting article on petrels. Latham refers to a specimen in the Leverian Museum.

A.M. 41.

88. ***Pelecanoides urinatrix*** (Gm.), 1789. Common Diving Petrel or Kuaka.

Unsigned painting of a bird taken 7th November, 1773 (1844 : 150), with an additional painting of the head showing dilatation of the pouch beneath the lower mandible. "*Procellaria tridactyla.* Teetee. Eyes blackish blue. Queen Charlotte's Sound. Nov. 24th." (D.) "Ge. Forster." (*Al.*) "—*urinatrix* S.N.XIII : 560. n. 11."

The Maoris use the name "Titi" for both the Sooty Shearwater and the Cook's petrel but apparently not for this bird. An engraving from this painting was reproduced in the *Penny Cyclopaedia* for 1840 (see f. 87). The pouch below the bill was described both by Forster (*loc. cit.*) and by Latham, who, however, makes no reference to a specimen or to this drawing (1785 : 413).

M.E. 23.

89. ***Pagodroma nivea*** (Forster), 1777. Snow Petrel.

Fully-coloured, signed painting of one of these birds swimming on a blue-green sea with dark clouds in the background. "G.F.30th Decemb. 1772. *Procellaria nivea* Southern Ice Ocean", the last three words are not quite clear owing to trimming of the paper. (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 562. n. 15."

J. R. Forster says that these petrels occurred in the Antarctic Ocean, south of Lat. 52°, especially in the vicinity of ice (1844 : 58). Latham speaks of specimens in both the British and the Leverian Museums (1785 : 408).

A.M. 39, 53.

90. ***Pagodroma nivea*** (Forster), 1777. See last folio.

Unsigned pencil sketch of the bird in flight, with one of the ships and some icebergs in the distance. "*Procell. nivea.*" (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 562. n. 15."

91. ***Fulmarus glacialoides*** (Smith), 1840. Silver-grey Petrel.

Unsigned completed painting of one of these birds floating on a brilliant sea, painted on 14th Oct., 1772, when the *Resolution* was west of the Cape of Good Hope (1844 : 25). "*Procellaria glacialis.* South Atlantic Ocean. S.L.36°." (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 562. n. 13 (after 16)."

The colouring of the bill in this painting makes it clear that this was not the Northern Fulmar with which it was confused at that time.

A.M. 42.

92. ***Adamastor cinereus*** (Gm.), 1789. Grey Petrel, Pediunker or Great Grey Shearwater; Pediunker is the vernacular name at Tristan da Cunha.

Unsigned painting, not quite finished. It is just possible to decipher " . . . *laria inexpectata*."

J. R. Forster says that the bird was captured on 10th January, 1774 (1844: 208–209) in Lat. 48° S., about midway between New Zealand and Cape Horn, and he remarks on the number of cephalopod beaks that he found in its stomach; he called the species *Procellaria haesitata* but before his work appeared in print that name had been published for another bird. Georg Forster seems to have confused this painting with No. 97. Latham (1785: 405) gives notes on a specimen he saw in the British Museum but seems to have taken his observations on the colours of the soft parts from this drawing or from the Forsters' MSS.

A Pediunker was taken on the first voyage (Sol. MS. Z4: 71) on 2nd October, 1769, Lat. 37° 10′ S., and Long. 171° 5′ W., when the *Endeavour* was east of New Zealand. We do not agree with Matthew's suggestion that Ellis's f. 41 represents this species (1912–13: 124).

93a. ***Macronectes giganteus*** (Gm.), 1789. Nellie, Bone-breaker or Giant Petrel.

Unsigned pencil sketch of the head and neck; probably of the bird taken on 28th December, 1774 (1844: 343) as J. R. Forster refers to this sketch. There was a specimen in the British Museum.

Parkinson, f. 17; Ellis, ff. 39, 42.

93b. ***Pterodroma macroptera macroptera*** (Smith), 1840. Great-winged Petrel.

A rather roughly-executed unsigned painting in sepia, probably of the bird taken on 12th October, 1772 (1844: 23) near Tristan da Cunha, one of the breeding grounds of this species. "*Procellaria fuliginosa*. Atlantic Ocean. S.Lat. 35." (*Al.*) "—*grisea* S.N.XIII: 564. n. 20."

94. ***Puffinus griseus*** (Gm.), 1789. Sooty Shearwater or New Zealand Mutton Bird.

A pale wash drawing, unsigned and unfinished, of a specimen taken in a high southern latitude (1844: 205) in 1773. "*Procell fuliginosa*? South Seas April [?] 50° S." (*Al.*) "—*grisea* S.N.XIII: 564. n. 20."

Forster's note is very faint and an indistinct word appears to be April though they were not so far south in that month in 1773 or in the other years. Mathews discusses this drawing in some detail (1912–13: 94) but is mistaken in giving 48° S. as the locality; J. R. Forster gives that latitude only as the northern limit of the range of the species. Latham refers to a specimen in the Leverian Museum (1785: 399).

Solander MS. Z4: 111: Parkinson, f. 23.

95. ***Thalassoica antarctica*** (Gm.), 1789. Antarctic Petrel.

Unsigned, fully finished painting of the bird in flight against drifting cloud. The edges of the paper are worn and have been cut in one place. "*Procellaria antarctica*." (*Al.*) "S.N.XIII: 565. n. 23."

J. R. Forster gave a brief description of this petrel from a sight record in 1772 but it was not until 1773 that he was able to get two specimens and draw up a detailed description (1844 : 60, 202). Latham does not mention the source of his information about this species.

A.M. 38.

96. ***Daption capensis*** (Linn.), 1758. Cape Pigeon or Pintado Bird.

Unsigned painting, in sepia wash, of a bird, swimming high in the water, that was taken with a fishing line on 12th October, 1772 (1844 : 20). "*Procell. capensis.*" (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 565. n.5 (after 23)".

There were specimens in both the Leverian and British Museums.

A.M. 37, 37A.

97. ***Pterodroma inexpectata*** (Forster), 1844. Mottled Petrel.

Unsigned sepia painting of a bird in flight, taken in the Antarctic Ocean, 1773 (1844 : 204). "*Procellaria haesitata.*" (D.) "Ge. Forster" (almost obliterated). (*Al.*) "*Oe. gularis* see *Monograph of Petrels*. p. 236. F. D. G."

J. R. Forster says (*loc. cit.*) that this species was found with the Antarctic Petrel. Godman (1909 : 236) suggested that *haesitata* was written on this painting by Solander but the writing is not like the annotations in Solander's copy of the 12th edition of the *Systema Naturae*, and seems more like that of Georg Forster. In view of the fact that Georg Forster wrote *inexpectata* on pl. 92, which represents a species referred to as *haesitata* by his father, it seems to be a case of simple human error, and one easily understood in the circumstances under which they were working.

Solander described *P. inexpectata* (MS. Z4 : 91–92) under the name of *lugens*.

Parkinson, ff. 21, 22.

98. ***Pterodroma lessonii*** (Garnot), 1926. White-headed Petrel.

Unsigned painting of the bird in flight. "*Procellaria leucocephala.*" (*Al.*) "*Procellaria leucocephala* (Forst.)"

This species was first described by the French scientist Garnot amongst others he saw at the Falkland Islands when he was on *La Coquille* at anchor in French Bay, East Falkland Island, November–December 1822 (1826 : 54). On p. 55 he says that it occurs in the vicinity of Cape Horn and in the Pacific, 52° N. (error for S.) and 85° W. The first locality he mentions, however, is clearly that of the type, and this was confirmed many years later by Bennet (1931 : 12) who, in August 1925, saw three specimens of this unmistakable petrel off the East Falklands. J. R. Forster (1844 : 206) says that it occurred right across the Pacific, from near New Holland to Cape Horn, but seldom north of 40° S.; he refers to it as the New Holland Shearwater. According to Murphy & Pennoyer (1952) this bird is closely related to *Pterodroma incerta* (Schl.).

99. ***Diomedea exulans*** Linn., 1758. Wandering Albatross.

Finished, unsigned painting of the bird at rest on the water: this may have been one of the nine Wanderers caught with hook and line on the 24th October, 1772 (Georg Forster's diary, p. 42), a date agreeing with his father's description (1844 : 27). "*Diomedea exulans.* Atlantic Ocean." (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 566."

J. R. Forster noted that the wing span varied from only 7 feet in the smallest of these birds to over 10 in the largest; it seems therefore that he also had specimens of the smaller Tristan race, *D. exulans dabbenena* Mathews, 1929, a form which has been separated comparatively recently. Both the British and the Leverian Museums possessed specimens of Wandering Albatrosses.

Parkinson, f. 25 ; A.M. 43 ; Ellis, f. 44 ; Solander MS. Z4 : 5–7.

100. ***Diomedea chlororhynchos*** Gm., 1789. Yellow-nosed Albatross.

An almost completed, unsigned painting " *Diomedea chrysostoma.* Irides brown. Under eyelid white. Head dark pearly grey, gradually and very softly vanishing into a fine clear white on the neck. A more dark Spot over the Eye. The middle of the Back black gradually turning into pearl grey and then into white towards the Neck- But abruptly bounded by white on the Uropygium end. Feet pale greyish white." Over the outline of the foot is written,—" This Leg is something too large." (*Al.*) "—*chlororhynchos* S.N.XIII : 568. n. 3. *D. chlororhyncha.*"

This is a representation of a bird which was not quite mature. It is certainly very similar to the sketch of *D. chrysostoma* on the next folio and differs mainly in the absence of the pale line along the ramal border of the lower mandible. Also there is no white beneath the eye though the MS. notes suggest that this is an accidental omission ; this white patch exists in both species but is not always obvious. *Chlororhynchos* and *chrysostoma* are difficult to separate when immature except by the shape of the posterior border of the culmen (Mathews, 1912 : 274) ; mature birds may also be distinguished also by the presence in *chrysostoma* of a yellow or horn-coloured ramal stripe along the lower mandible, a character lacking in *chlororhynchos* (Mathews & Iredale, 1921 : f. 2) which however possesses a vertical orange stripe at the base of the lower mandible, a character lacking in *chrysostoma*.

D. chlororhynchos has a more northerly range than *D. chrysostoma*, and Murphy says that it has not been found in the eastern Pacific or off the west coast of South America (1936 : 520–521) and that, primarily, it is a bird of the milder Atlantic and Indian Ocean regions. Tristan da Cunha is one of its breeding grounds and it is probable that the bird collected in early October 1772, between Tristan da Cunha and the Cape of Good Hope (1844 : 24–25) was in fact a member of this species, although Forster's detailed description published under that date refers unmistakably to *D. chrysostoma*, as may be seen in the notes on the following painting. Since Forster noted that *chrysostoma* occurred in the far south, *circa* Lat. 71° S., and in South Georgia (*op. cit.* : 210, 313), as well as in the vicinity of the Cape of Good Hope, it seems clear that he collected both species but did not realize that they differed—hence the placing of the description of *chrysostoma* under a locality and a date that in all probability pertained to *chlororhynchos*. No dates or places were noted on the drawings in question.

101. ***Diomedea chrysostoma*** Forster, 1785. Grey-headed Albatross.

Unsigned pencil sketch ; on the back is a pencil sketch of two Bearded Penguins, *Pygoscelis antarctica* (see f. 82). (D.) " Ge. Forster." (*Al.*) " *Diomedea chrysostoma—chlororhynchos* S.N.XIII : 564. n.3."

J. R. Forster described and figured this species in 1785 ; a further account by him was published in 1844 : 24–25. For some reason the second description has been assumed to refer to *D. chlororhynchos* (Salvin, 1896 : 452, etc.) but the description of the bill, quoted below, is unmistakable—" Rostrum nigrum, supra linea flava : mandibula inferior a plumis divisa margine elevato, membranaceo angusto aureo, decurrente postice per fauces et ultra sub oculis, infra desinente in lineam flavam ante apicem terminatam." Murphy has already pointed out that Peters (1931) is incorrect in the type locality he quotes and has suggested that it should be changed to South Georgia where Forster found this albatross in January 1775.

Parkinson, f. 27 ; Solander MS. Z4 : 11.

102. ***Phoebetria palpebrata*** (Forst.), 1785. Light-mantled Sooty Albatross.

Signed, fully finished painting of an albatross taken in the South Pacific. " G. Forster delin 1773. ad vivum in mari Antarctici. *Diomedea palpebrata*. die 20 Jan. Anni. 1773." (D.) " Ge. Forster." (*Al.*) " South Sea. *Diomedea fuliginosa* S.N.XIII : 568 : n. 4 *Ph. cornicoides* F.D.G."

J. R. Forster's first description of this species was published in Paris in 1785, and the second in 1844 : 55–56 ; he gives its range as the Antarctic Ocean from Lat. 47° to 71·10° S.

A.M. 49 ; Parkinson, f. 26.

103. ***Phalacrocorax punctatus*** (Sparrm.), 1786. Spotted Shag or Parekareka.

Unsigned, finished painting of a Spotted Shag taken on 27th May, 1773 (1844 : 104). " *Pelecanus punctatus* Charlotte's Sound, N.Z. Pa-degga-degga." (D.) " Ge. Forster." (*Al.*) " Charlotte's Sound N.Z. S.N.XIII : 574. n. 20. —*naevius ib.* 575. n. 24."

M.E. 22 ; P.R. 14 ; A.M. 47.

104. ***Phalacrocorax carunculatus*** (Gm.), 1789. Rough-faced Shag.

Unsigned painting of a bird taken on 20th May, 1773 (1844 : 102). " *Pelecanus carunculatus*. Queen Charlotte's Sound." (D.) " Ge. Forster." (*Al.*) " S.N.XIII : 576. n. 25."

J. R. Forster apparently confused this species with *P. albiventer* (Lesson) since he states that he saw it in Terra del Fuego and Statenland as well as in New Zealand (1844 : 102). Specimens of both the Rough-faced and the Spotted Shag were in the Leverian Museum (Latham, 1785 : 602–603).

105. ***Phalacrocorax magellanicus*** (Gm.), 1789. Rock or Megallanic Shag.

Unsigned, almost completed painting. " Tierra del Fuego. ☿. 28th Dec. 1774. *Pelecanus magellanicus*." (*Al.*) " S.N.XIII : 576. n. 26."

J. R. Forster described this shag in detail (1844 : 313) ; he also refers to having seen it at South Georgia (*op. cit.* : 313) but perhaps confused it with *P. atriceps*, a Blue-eyed Shag which occurs there as well as in Terra del Fuego. Latham mentions that a specimen of the Magellanic Shag was in the Leverian Museum (1785 : 604).

M.E. 21 ; A.M. 48.

106. ***Phalacrocorax varius varius*** (Gm.), 1789. Pied Shag or Karuhiruhi.

Finished, unsigned painting of one of these shags on the water ; an egg is shown too. " *Pelecanus pica*. Queen Charlotte's Sound." (D.) " Ge. Forster." (*Al.*) "—*varius* S.N.XIII : 576. n. 27. Lath. 605. n. 21. similar."

Latham (1785 : *loc. cit.*) discusses a specimen in the Leverian Museum and compares it with this drawing. J. R. Forster mentions that a specimen was taken in Dusky Sound (1844 : 104) and gives notes on breeding times.

107. ***Sula dactylatra personata*** Gould, 1846. Australian Masked Gannet.

Unsigned painting. " *Pelecanus piscator* Linn. Norfolk Isles. oct. 9th. 1774." (D.) " Forster."

Since the Forsters believed that this species had already been described by Linnaeus they apparently did not trouble to make any notes about it save for a comment on the nests (1844 : 279), and many years passed before it received a scientific name. The mask of the bird in Forster's plate is a dark yellowish grey.
Ellis, f. 47.

108. ***Sula leucogaster plotus*** Forster, 1844. Australian Brown Gannet or Booby.

A painting, unsigned and unfinished. " *Pelecanus Plotus* [crossed out] *Fiber* Linn. N. Caledonia. ♀. 16th Sept. 1774." (D.) " G. Forster."

This species had been taken on the first voyage when the *Endeavour* was off the Australian coast (Solander MS. Z4 : 23) but was then confused with *Sula sula* Linn., 1766 : Forster compares the size of the two species (1844 : 278), referring to *S. sula* as *Pelecanus fiber* Linn., a synonym based on an immature bird.
P.R. 16 ; A.M. 46.

109. ***Larus ?novaehollandiae scopulinus*** Forster, 1844. Silver Gull or Tarapunga.

An unsigned, unfinished painting of a gull in flight. " New Zealand. he talla." (J. R. F.) " *Larus scopulinus.*"

When J. R. Forster described this bird (1844 : 106) he stated that it was painted by Hodges, an attribution that there seems no reason to doubt. It was first taken in Dusky Sound, 13th April, 1773 ; the painting shows a young bird, in first juvenal plumage. Messrs. G. Turbott and J. M. Cunningham have seen this drawing and have pointed out that it shows some resemblance to *L. bulleri* Hutton ; it is possible that Forster had specimens of both species.

110. ***Sterna fuscata serrata*** Wagler, 1830. Sooty or Wideawake Tern.

Unsigned, finished painting. " N. Caledonia. ♀. Sept. 16th. 1774." (*Al.*) " *Sterna serrata.*"

Wagler's description of this bird is almost identical with Forster's (1844 : 276) and he acknowledges Forster as the source of his information.
See also P.R. 21 ; A.M. 44 ; Ellis, f. 55.

111. ***Nycticorax caledonicus*** (Gm.), 1789. New Caledonian Night Heron.

Unfinished, unsigned painting. " *Ardea ferruginea* 11th Sept. 1774. N. Caledonia." (D.) " Ge. Forster." (*Al.*) " *Ardea caledonica* S.N.XIII : 626."

J. R. Forster states (1844 : 274) that this bird lived in an intensely foetid swamp. Latham says that Forster described it to him (1785 : 55).

112. ***Ardea*** sp.

A charming, signed painting of a heron. "G. F. 1773." (D.) "Ge. Forster." (*Al.*) "*Ardea cocoi* S.N.XIII : 629. Prom. bon spei in vivario."

This plate shows a young blue-grey heron, lacking a crest, with dark streaks down the neck and breast, a horn-coloured bill, blue-grey legs, and feet with black claws. One might assume that the locality is doubtful since Georg Forster dated the plate 1773 and the *Resolution* left Capetown in November 1772, but it seems more probable that this and some other paintings of Cape birds (see ff. 115, 116) were finished at sea and dated only then. It is difficult to accept Sharpe's suggestion (1906 : 189) that this may be a representation of *Demigretta sacra*, a bird lacking the streaks on the neck, and with yellow legs; besides, Georg Forster's plate 114 is quite a good likeness of that species. The two birds closest to the painting are immatures of *A. cocoi* Linn. and *A. cinerea* Linn.; both of these are grey herons with streaks on the neck, but *A. cocoi* when immature has whitish thighs and dull black legs and feet, while *A. cinerea* has greenish legs. The latter is a South African breeding bird but the former is a South American species unlikely to have been in a South African menagerie during the eighteenth century. If Forster made a preliminary sketch in November 1772, when he was at the Cape, and finished it later at sea from memory, that might account for the colour of the legs being wrong, in which case the painting would be acceptable as a not very good representation of *A. cinerea.*

113. **? *Ardea cinerea*** Linn., 1758. Common Grey Heron.

Rather a hastily executed unsigned, pencil sketch of a bird seen, apparently, in the menagerie at the Cape of Good Hope. (D.) "Forster." (*Al.*) "Prom bon Spei in Vivario. *Ardea cocoi.*"

Sharpe thought that this drawing was unidentifiable (1906 : 189). The details of the bill, crown and crest, and the markings on the lower surface of the neck and breast, however, suggest that it may represent *A. cinerea* which as noted above, is a South African breeding bird.

114. ***Demigretta sacra sacra*** (Gm.), 1789. Blue phase of the Reef Heron or Matuku-Moana.

Unsigned painting, not quite finished, or a New Zealand specimen of this heron. "*Ardea jugularis.* Queen Charlotte's Sound. Matook." (D.) "Ge. Forster." (*Al.*) "—*coerulea* S.N.XIII : 631. n. 17."

J. R. Forster noted the extensive range and colour variation in this species and thought that it might be due to hybridization (1844 : 172–173).

Webber, f. 118.

115. ***Bugeranus carunculatus*** (Gm.), 1789. Wattled Crane.

A signed and finished painting, attributed by J. R. Forster to Schumacher (1844 : 47), but in view of Georg Forster's having written his monogram on the actual painting we can scarcely doubt that he was the artist. The crane was in the menagerie at the Cape. "G.F. 1773. *Ardea palearis.* Cape B. Sp." (D.) "G. Forster" (almost obliterated). (*Al.*) "*Ardea carunculata* S.N.XIII : 643."

For a comment on the date see f. 112. Another painting of a Wattled Crane (P.R. 56—Masson's collection), appears to have been made at the same time;

Latham's plate of the species (1785 : pl. 78) seems to be a composite of that and of Forster's.

116. ***Geronticus calvus*** (Bodd.), 1783. Bald Ibis.

Signed and finished painting of a bird in the menagerie at Capetown (1844 : 49). " G.F. 1773." (D.) " Ge. Forster." (*Al.*) " *Tantalus cafer*—calvus S.N.XIII : 649."

For comment on the date see f. 112.

117. ***Theristicus caudatus melanopis*** (Gm.), 1789. Black-faced Ibis.

Unsigned, almost completed painting. " Staten Land. 3 Jany. 1775. *Tantalus melanops.*" (*Al.*) "—*is.* S.N.XIII : 653."

Forster's specimen went to Banks's collection (Latham, 1785 : 109) ; J. R. Forster described it in detail (1844 : 332–333).

M.E. 19 ; P.R. 15, 22, 62 ; A.M. 52.

118. ***Erolia testacea*** (Pallas), 1764. Curlew Sandpiper.

Signed and completed painting. " G.F. 1773. *Scolopax Cafra.*" (D.) " Ge. Forster." (*Al.*) "—*africana* Cape of Good Hope."

This bird breeds in Northern Asia but winters in Africa and other countries south of the equator. J. R. Forster sent four specimens in spirit back to the Royal Society (1844 : 49).

119. ***Numenius tahitiensis*** (Gm.), 1789. Bristle-thighed Curlew.

Almost finished, unsigned painting. " *Scolopax tahitiensis.* Tewéa. May 3. 1774." (*Al.*) " 18½/37. Otaheiti. S.N.XIII : 656."

Latham does not state whether he saw a drawing or a specimen in Banks's collection (1785 : 122). J. R. Forster described this bird in some detail (1844 : 242–244) comparing it with the European Curlew. For almost one hundred years after its discovery it was believed to be confined to the Pacific and its breeding place was unknown, but in May 1869, examples were collected by Bischoff in Alaska ; it was not until 1948 that the nest and eggs were actually discovered in that country by D. G. Allen, a member of an American expedition (*National Geographic Magazine*, Dec., 1948). This painting was reproduced in the *Illustrated London News* in June that year, with an account of the purpose of the expedition.

120. ***Prosobonia leucoptera*** (Gm.), 1789. Latham's White-winged Sandpiper.

Unsigned painting, with the background lightly sketched in, of a curious little sandpiper now extinct. " *Tringa pyrrhetraea.* Torowè. Taheitee." (*Al.*) "—*leucoptera* S.N.XIII : 678."

Full notes on this species are given under Ellis, f. 65. J. R. Forster remarks (1844 : 175) that the 15th and 16th primaries [probably secondaries] of the wing were white on the right and black on the left of the bird he examined. He adds that he was unable to get hold of another specimen. Latham remarks on variability in the birds he saw (1785 : 172).

Ellis, f. 65 ; Webber, f. 166.

121. ***Thinornis novaeseelandiae*** (Gm.), 1789. Sand Plover or Tuturuatu.

Finished, unsigned painting. "*Charadrius torquatula.* Doodoorroo-ăttoo. Charlotte's Sound." (D.) "G. Forster." (*Al.*) "—*nova Seelandia* S.N.XIII : 684."

This species was actually discovered at Dusky Sound New Zealand (1844 : 108), although Georg Forster's specimen was from Queen Charlotte's Sound. It now occurs only at the Chatham Islands. It was represented in Banks's collection (Latham, 1785 : 206, pl. 83).

P.R. 11 ; M.E. 26.

122. ***Pluviorhynchus obscurus*** (Gm.), 1789. New Zealand Dotterel or Tuturiwhatu.

Unsigned, finished painting of a bird in breeding plumage. "*Charadrius Glareola.* Hapoho-èra. April 4th. 1773. Dusky Bay." (D.) "Ge. Forster." (*Al.*) "—*obscurus* S.N.XIII : 686."

J. R. Forster gave a very careful description of this bird (1844 : 109–110). Latham may have seen a specimen as well as this drawing (1785 : 211).

123. ***Pluvialis dominica fulva*** (Gm.), 1789. Asiatic Golden Plover.

Unsigned, finished painting of a Golden Plover assuming winter plumage. "*Charadrius Glaucopus.* Tonga Tabboo or Amsterdam I." (D.) "Ge. Forster." (*Al.*) "*Charadrius fulvus* S.N.XIII : 687."

Gmelin refers to Latham's account of this species (1785 : 211) and quotes a description from Forster. This painting does not, however, appear to be the type since J. R. Forster gives only Tahiti as the habitat (1844 : 176) and neither of the Golden Plovers figured by his son (see next f.) came from there.

Ellis, f. 68.

124. ***Pluvialis dominica fulva*** (Gm.), 1789. Asiatic Golden Plover.

An unfinished and unsigned wash drawing of the species figured in f. 123. "*Charadrius glaucopus* var. N. Caledonia. Poemanghee ♂. Sept. 6. 1774. Cap. fuscum striatis fulvis, Collum simile sed pallidius. Eyes dark brown. Macula aurium fusca. Maculae flavescentes & albadors. Tectrices alarum cinereofusca, albicante variae. Cauda rufa, fasciis fuscis." [Some of the terminations of the Latin words are indistinct and do not appear logical.] (D.) "Ge. Forster."

The monochrome used in this figure gives the bird the appearance of the Grey Plover *Squatarola squatarola* (Linn.) but the MS. notes clearly show that it is indeed the Golden Plover ; it is in rather fuller plumage than the bird in f. 123.

125. ***Chionis alba*** (Gm.), 1789. Sheath-bill.

Unsigned, completed painting. "Staten Land. Jany. 2d. 1775." (J. R. F.) "*Chionis lactea.*" (*Al.*) "*Vaginalis alba* S.N.XIII : 705."

J. R. Forster refers to this species (1844 : 312, 313, 330), giving its habitat as New Year Island off Statenland, and South Georgia. Latham added New Zealand to its range (1785 : 269), a mistake which was copied by Gmelin. Latham's account suggests that he saw specimens ; his plate (no. 89) bears little resemblance to Forster's.

M.E. 31 ; A.M. 51.

126. ***Gallirallus australis australis*** (Sparrm.), 1786. South Island Weka of New Zealand.

Unsigned, finished painting of a member of this once-abundant species, discovered in Dusky Sound (1844 : 110), March 1773. "*Rallus Troglodytes* N. Zeeland. wegga." (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 713."

Latham, using Forster's notes and a specimen in the Leverian Museum (1785 : 229) distinguished the forms of this rail as separate species. There is considerable variation throughout the genus which has long caused confusion in the nomenclature (Buller, 1888, etc.). Peters (1934 : 178) thinks it unlikely that there is another South Island race of *G. australis*, since the ranges of two supposedly distinct forms overlap ; he considers that more probably one form exists in two colour phases. M.E. 28, 29 ; P.R. 17, 61 ; A.M. 33.

*127. ***Rallus philippensis ecaudata*** J. F. Miller, 1783. Banded Rail.

Unsigned, finished painting of a rail from Tonga (1844 : 178). "*Rallus pacificus.* Namoka. ♀. July 1st, 1774." (D.) "Ge. Forster." (*Al.*) "—*philippensis* S.N.XIII : 714."

The date, only just legible, was two days after Cook left Tonga and probably refers to the time the painting was finished. J. R. Forster (1844 : 178) described this bird as a Tongan variety of *Rallus pacificus* from Tahiti. In the first description published by Miller, whose plate was clearly taken from Forster's drawing, Tahiti was erroneously given as the habitat. This led to confusion and to another name being given to the Tongan bird which appears in current literature both as *R. p. ecaudata* Miller and *R. p. forsteri* Hartlaub. A note on the synonymy has been published elsewhere (Lysaght, 1953 : 75). Miller makes no reference to a specimen and it is probable that this painting is the type.

128. ***Rallus pacificus*** Gm., 1789. Pacific Rail.

Unsigned painting, finished except for one leg. "*Rallus pacificus* Oomeeo-keteōw. Oomnaoe. Taheitee." (D.) "Ge. Forster." (*Al.*) "—*philippensis* β S.N.XIII : 714."

Gmelin's description of this species (1789 : 717) was based on that of Latham who does not state whether he saw a specimen or a drawing. No museum specimens now exist and the plate in Rothschild's *Extinct Birds* (1907 : pl. 26) is a copy of this painting of Forster's ; there is a translation of J. R. Forster's description (1844 : 177) in the same work. This species has been confused with *Rallus philippensis ecaudata* (f. 127) ; the synonymy is discussed briefly in the note on that species.

*129. ***Rallus caerulescens*** Gm., 1789. Kaffir Rail.

A signed and completed plate of a bird in a menagerie at the Cape of Good Hope (1844 : 50). "G.F.1773. *Rallus Cafer.*" (D.) "Ge. Forster." (*Al.*) "Prom. bon. spei. —*caerulescens* S.N.XIII : 716."

Latham's account was based on this drawing (1785 : 234) which is therefore the type. The date of this drawing does not refer to the time when the specimen was collected (see f. 112 etc.).

130. ***Porzana nigra*** (Miller), 1784. Polynesian Black or Sooty Rail.

Finished, unsigned painting of this widely distributed little rail, discovered in 1773 (1844 : 178). "*Rallus minutus*. Màho. Taheitee." (D.) "Ge. Forster." (*Al.*) "—*tabuensis* S.N.XIII : 717. n.20."

This species was recorded by J. R. Forster from both the Friendly and Society Islands. Latham gave Tanna as the habitat of a variety (1785 : 235) but Amadon (1942) discussing this bird under the name of *P. tabuensis* (see Lysaght, 1956), thought that there were no valid grounds for dividing the Polynesian birds into races although he has separated a form that occurs in Tasmania, New Zealand and the Chatham Islands.

Most of Sharpe's notes on this painting (1906 : 192) apply to the next one.

131. ***Poliolimnas cinereus tannensis*** (Forster), 1844. White-browed Crake.

Unsigned pencil sketch of a crake from Tanna, New Hebrides. " *Rallus tanensis.* ♀. 12th August, 1774." (D.) " Ge. Forster."

J. R. Forster described this bird (1844 : 275) and it is possible that M.E. 27 and A.M. 8 are other representations of it.

132. ***Limnocorax flavirostra*** (Swainson), 1837. Black Crake.

Unsigned painting, lacking detail, of a South African bird collected on the homeward voyage. " *Rallus aethiops* (C. B. S.) April 24th.1775." (*Al.*) "—*niger* S.N.XIII : 717. n.21. Prom. bon spei."

J. R. Forster described this bird (1844 : 400) but Swainson's account appeared seven years earlier.

133. ***Afrotis afra afra*** (Linn.), 1766. Black Korhaan.

An elaborate painting with an arum and other plants in the foreground, and a background of sea and hills. There is no doubt that, although this bears some resemblance to Hodge's work, it is by Georg Forster since his monogram and the date are written on a leaf near the middle of the foreground. " G.F.1773." (*Al.*) " *Otis afra* S.N.XIII : 724."

J. R. Forster (1844 : 52) remarks that he sent one of these birds from Capetown to the Royal Society.

134. ***? Afrotis afra afra*** (Linn.), 1766. Black Koorhaan.

An unfinished and unsigned painting, perhaps representing the female and young of the above species as Sharpe suggested (1906 : 193). (D.) " Ge. Forster." (*Al.*) " *Otis afra* S.N.XIII : 724. Cape of Good Hope."

135. ***Francolinus capensis*** (Gm.), 1789. Cape Francolin.

Unsigned, unfinished painting of a bird collected at the Cape on the homeward voyage (1844 : 400–404). " *Tetrao capensis* " [some notes on colouring are indecipherable]. (D.) " G. Forster." (*Al.*) " Pheasant. Prom. bon Spei."

J. R. Forster discusses this species at length and points out that although it is called a pheasant locally it is very different from the true pheasants. Latham spoke of a specimen in the British Museum (1782 : 756).

P.R. 36.

136. ***Gallicolumba erythroptera*** (Gm.), 1789. Latham's Garnet-winged Pigeon.

Finished, unsigned painting of a bird collected in 1773. " *Columba leucophrys*. Taheitee." (D.) " Ge. Forster." (*Al.*) "—*pectoralis* MSS —*erythroptera* S.N.XIII : 775. n. 10."

This species was collected in the Society Islands on all three of Cook's voyages to the Pacific. The birds painted by Parkinson and Forster came from Tahiti; on the third voyage Ellis painted one from Eimeo (Moorea), an island not far from Tahiti, and in that specimen the abdomen as well as the breast was white. Latham described one in the Leverian Museum which agrees with Forster's and which came from Eimeo, and noted, in Banks's collection, a variety with a ferruginous eye-stripe from Tahiti (1783 : 624–625); Gmelin, basing his account on Latham's, gave Eimeo as the habitat of the type. Temminck (1808–11 : 123) stated that he saw several in London collections; there is now one in the Leiden Museum labelled "Voyage de Cook. O. Tahiti. Cab. Bullock."

This species apparently became extinct in Tahiti and the other islands of the Society group in the eighteenth century, but was collected in the Tuamotu Islands by Captain Belcher (1 skin) and by T. R. Peale (2 skins) in the nineteenth century, and again in 1922 by the Whitney Expedition (20 adults; Murphy, 1924).

Parkinson, f. 35; M.E. 30; Ellis, f. 71.

137. ***Hemiphaga novaeseelandiae*** (Gm.), 1789. New Zealand Pigeon or Kereru.

Unsigned, almost completed painting. "*Columba argetraea.* Dusky Bay (N.Z.) April 3rd 1773. hagarrèroo." (D.) "Ge. Forster." (*Al.*) "—*Nova Seelandia* S.N.XIII : 773."

The first published reference to this pigeon was by Parkinson (1773 : 115) who observed it at Queen Charlotte's Sound, in January 1770; his notes on the colours of the soft parts were published amongst his brief descriptions of Australian birds (Lysaght & Serventy, 1956). Latham's was the first detailed account (1783 : 640) but he gave no particulars about his sources of information. J. R. Forster's remarks (1844 : 80) contain nothing of particular interest about the species.

M.E. 5; A.M. 26.

*138. ***Ptilinopus tannensis*** (Latham), 1790. Tanna Fruit Dove.

Finished, unsigned painting of a specimen collected in Tanna, New Hebrides, 1774 (1844 : 264). "Tanna." (J. R. F.) "*Columba xanthura.*" (D.) "Ge. Forster." (*Al.*) "—*curvirostra* β S.N.XIII : 777."

Latham described this dove from this drawing (1783 : 632, 1790 : 600) which is therefore the type; both he and Gmelin first regarded it as a variety of *Treron curvirostra* (Gm.), quite a different species.

139. ***Ducula pacifica pacifica*** (Gm.), 1789. Pacific Pigeon.

Unsigned, finished painting. "*Columba globicera.* Ooroobaria. Tongatabo. Amsterdam I." (D.) "Ge. Forster." (*Al.*) "—*aenea* S.N.XIII : 780. Sonnerat Nov. Guin. 169.t.102."

Sharpe (1906 : 193–194) thought that this plate probably represented the Pacific Pigeon.

A.M. 11; Ellis, f. 72.

140. ***Ptilinopus purpuratus purpuratus*** (Gm.), 1789. Purple-crowned Fruit Pigeon.

Unsigned, finished painting. "*Columba porphyracra.* Oo-oòpa. Taheiti." (D.) "Ge. Forster." (*Al.*) "—*purpurata* S.N.XIII : 784. n. 64."

J. R. Forster's notes on colour variation in these fruit pigeons (1844 : 167–168) are of interest especially in connection with recent work on the group by Ripley &

Birckhead (1942). Latham refers to a specimen from Tahiti in the Leverian Museum.

Parkinson, f. 34.

141. ***Ptilinopus porphyraceus porphyraceus*** (Temminck), 1821. Crimson-crowned Fruit Pigeon.

Fully finished, unsigned painting of a Tongan fruit pigeon. "*Columba porphyracra.* Amsterdam I." (*Al.*) "—*purpurata* S.N.XIII : 784. n. 64."

J. R. Forster gives only a brief note on this Tongan bird (1844 : 167).

M.E. 13 ; A.M. 12.

142. ***? Gallicolumba ferruginea*** (Wagler), 1829. Tanna Ground Dove.

Unsigned, finished painting, without much detail, of a bird collected at Tanna, New Hebrides. "*Columba ferruginea.* Tanna. ♀. 17th Aug. 1774." (D.) "Ge. Forster."

J. R. Forster gives a number of details about this bird (1844 : 265) which has been the subject of much discussion since this is the only record of its occurrence in Tanna. Salvadori pointed out (1893) that it was very close to *Gallicolumba stairi* Gray, 1856 from Samoa ; since then Mayr (1935) has described a new and uncommon species, *santaecrucis*, close to *stairi*, from the Santa Cruz Islands and Espiritu Santo in the northern New Hebrides. In the British Museum there is a skin of a female from Betap, Espiritu Santo, collected in 1933, which is rather similar to Forster's painting. Variation in *stairi*, in which there are two types of female plumage, is discussed in some detail by Amadon (1943) ; in view of the assumption of a male type of plumage by some females in that species there are grounds for hesitating to adopt Stresemann's suggestion that Forster sexed his specimen incorrectly (1950 : 84).

*143. ***Anthus novaeseelandiae*** (Gm.), 1789. New Zealand Pipit or Pihoihoi.

Unsigned, finished painting. "*Alauda littorea.* Kogoo uroùre. Q. Charlotte's Sound." (D.) "New Zealand Lark. Latham syn. 2. p. 384. n.17. tab. 51. from this drawing." (*Al.*) "—*nova Seelandia* S.N.XIII : 799." On the back is also a little note in Georg Forster's hand, "2 N.Z. Mammalia, 35 N.Z. birds, 2 N.H.do., S.C.Q.C.S. N.Z. 7th Nov. 1774." N.H. probably means New Holland ; two birds were brought from there by Captain Furneaux.

Latham (1783 : 384) says that his description was taken from Banks's collection of drawings, and this one therefore is the type. Some of the white paint seems to have discoloured with age. See also M.E. 32 and A.M. 31.

144. ***Creadion carunculatus*** (Gm.), 1789. New Zealand Saddleback or Tieke.

An unsigned, finished painting of two birds, an adult above and an immature below. "*Sturnus carunculatus.* N.Z. Charlotte's Sound." (D.) "Ge. Forster." (*Al.*) "—S.N.XIII : 805."

Latham described this species (1783 : 9) from specimens in the Leverian Museum as well as from J. R. Forster's notes ; he confused the colouring of the female with that of an immature bird just as Forster did (1844 : 81). The birds were taken in March 1773, in Dusky Sound, as well as in May or June in Queen Charlotte's Sound, that is of course the southern autumn and early winter; the immature plumage persists for a year, a fact which misled some later observers. The Saddleback was once common throughout New Zealand but is now very rare except in a few outlying islands.

M.E. 7; A.M. 19; Ellis, f. 73.

145. ***Turnagra capensis*** (Sparrm.), 1789. South Island Thrush or Piopio.

An unsigned, finished painting of an adult from Dusky Sound, another, not quite completed, of an immature bird from Queen Charlotte's Sound, and a pencil sketch of a bill." "*Turdus crassirostris* golðbeeo. Dusky Bay, April 4th. 1773." (The localities are also pencilled against the birds.) (D.) "Ge. Forster." (*Al.*) "S.N.XIII : 815.n.43."

J. R. Forster noted (1844 : 85) that there were two types of plumage but did not state that these were due to age or sex. Latham (1873 : 34) assumed that the younger, brighter bird was the female; he described a specimen from the Leverian Museum, and his type ultimately went to the Natural History Museum in Vienna.

A.M. 29.

146. ***Aplonis ulietensis*** (Gm.), 1789. A starling; Latham's Bay Thrush.

Unsigned, finished painting of a bird from Raiatea in the Society Islands. "*Turdus badius.* Raïetea ☿ June 1st. 1774." (*Al.*) "—*ulietensis.* S.N.XIII : 815.n.44."

The synonymy of this bird has been discussed by Wiglesworth (1892 : 45) who pointed out that the type and only specimen of *Aplonis mavornata* Buller, 1887 (*A. inornata* Sharpe, 1890) which Sharpe had suggested might be the type of *A. ulietensis* (1890 : 135–136), did not in fact agree with the measurements of Latham's Bay Thrush, the bird quoted by Gmelin in his description of *A. ulietensis*. Wiglesworth had apparently not seen Forster's drawing which differs from the type of *A. mavornata* not only in size, but also in colour, shape of the tail, and other features; one striking difference is that while the feathers of the head and neck in *A. mavornata* are tiny and lanceolate those in Forster's bird are fan-like with wavy transverse barring so that the head has a slightly curly appearance. A number of Polynesian species of *Aplonis* have recently been discussed by Mayr (1942) but no specimens further east than the Cook Islands were mentioned; if these should occur it may be possible to revise our ideas of Georg Forster's bird which his father regarded as belonging to a new and distinct genus (1844 : 239). This painting was reproduced by Seebohm (1881) but the copy was a poor one since the whole aspect of the bird was changed.

147a. ***Cossypha caffra*** (Linn.), 1771. Cape Robin.

Unsigned, finished painting of a specimen collected in 1775 (1844 : 404). *Turdus phoenicurus* Cape of Good Hope." (*Al.*) "S.N.XIII : 816."

147b. ***Cercomela familiaris*** (Stephens), 1826. Familiar Chat.

Finished, unsigned painting of a bird collected in 1775 (1844 : 404). "*Turdus sordidulus.* Cape of Good Hope."

148. ***Petroica (Miro) australis*** (Sparrm.), 1788. South Island Robin or Toutouwai, of New Zealand.

Unsigned, finished painting. " *Turdus ochrotarsus* No. 3. N.Z. Dusky Bay. March 28th. 1773. Gha-Toitoi." (D.) " G. Forst " (almost trimmed away). (*Al.*) "—*albifrons* x S.N.XIII : 822."

The colouring here is fairly accurate but the bird has been made too plump. J. R. Forster says (1844 : 82) " Suaviter cantillat homines non formidat, —saepius manu captus vel pileo." This little bird is still common in some localities and is remarkably tame, even more so than the English robin.

149. ***Petroica macrocephala*** (Gm.), 1789. Yellow-breasted Tit or Ngiru-ngiru.

Unsigned, finished painting of both the male (upper figure), and the female ; this species was collected in New Zealand in 1773 (1844 : 83) " *Turdus minutus*, Mirro-mirro. Queen Charlotte's Sound. N.Z."

Latham saw either a specimen or a drawing of this bird in Banks's collection.

150. ***Petroica multicolor*** (Gm.), 1789. Scarlet-breasted Robin of Norfolk Island.

Unsigned, finished painting of the male (left) and female. " *Turdus dibaphus*. Norfolk Isle, ♂ 11th. Oct. 1774."

J. R. Forster described both sexes (1844 : 267). Latham states (1783 : 343) that there was a male in Banks's collection and a female in the Leverian Museum. M.E. 35 ; A.M. 13.

151. ***Turdus poliocephalus xanthopus*** Forster, 1844. Vinous-tinted Blackbird.

Unfinished, unsigned painting : the vinaceous wash of the breast is not shown and there is little detail. The specimen was collected in Sept., 1774, in New Caledonia (1844 : 266). " *Turdus xanthopus* [*flavipes* crossed out]. N. Caledonia." (D.) " Ge. Forster." (*Al.*) "—*aurantius* S.N.XIII : 832."

Mathews regarded *xanthopus* as a full species (1930 : 580), but we have followed Mayr's arrangement (1931 : 22 ; 1941) whereby the Australonesian thrushes with yellow bills and legs are placed in *Turdus poliocephalus*, a species embracing a number of island races.

152. ***Euplectes orix*** (Linn.), 1758. Red Bishop-bird.

Signed, dated and completed plate of a specimen collected at the Cape of Good Hope, November 1772 (1844 : 53) : " G.F.1773." [See ff. 112, 116 etc. for note on this date.] (D.) " Ge. Forster." (*Al.*) " *Loxia orix* S.N.XIII : 863. *Emberiza orix* L. Cape."

J. R. Forster sent several of these birds to the Royal Society (*loc. cit.*).

*153. ***Acalanthe psittacea*** (Gm.), 1789. Parrot-finch.

Barely finished, unsigned painting of a New Caledonian bird collected in September 1774 (1844 : 273). " New Caledonia." (D.) " Ge. Forster." (*Al.*) " *Loxia pulchella Fringilla psittacea* S.N.XIII : 903."

This painting is very similar to Latham's (1783 : pl. 48) and his description is so close to J. R. Forster's (*loc. cit.*) that it seems that the painting represents the type.

154a. ***Fringillaria capensis*** Linn., 1766. Cape Rock-bunting.

Unsigned, finished painting of a specimen collected on the homeward voyage, in 1775 (1844 : 405). " *Fringilla bicincta.* Cape of Good Hope." (*Al.*) "—*naevia* S.N.XIII : 911."

154*b*. ***Spheneacus afer*** (Gm.), 1789. Cape Grass-bird.

Unsigned, finished painting of another South African bird collected at the Cape of Good Hope on the homeward voyage (1844 : 407) " *Muscicapa dubia.* Cape of Good Hope" (*Al.*) "—*afra* S.N.XIII : 940."

Latham gives no information about the source of his material (1783 : 332).

155. ***Rhipidura fuliginosa*** (Sparrm.), 1787. New Zealand Fantail or Piwakawaka.

Unsigned, finished painting. " *Muscicapa ventilabrum.* No. 4. N.Z. March 28th. 1773. diggo wagh wagh." (D.) " Fan-tailed Flycatcher. Latham syn. 2. p. 340. n. 33. tab. 49. from this drawing." (*Al.*) "—*flabellifera* S.N.XIII : 943."

Latham's plate is very close to Forster's but he also saw some specimens. J. R. Forster noted that this bird was very tame (1844 : 86) and that it would perch on a man's head or shoulder to catch the flies he disturbed. It is a species that has adapted itself to settlement and it readily enters houses in the country or on the outskirts of towns.

156. ***Pomarea nigra*** (Sparrm.), 1786. Society Islands Flycatcher.

Finished, unsigned painting of a young bird. " *Muscicapa lutea.* Oo-ma-mao pooo hoù. Taheitee." (D.) " Ge. Forster." (*Al.*) " S.N.XIII : 944. n. 70."

The sexes are alike. J. R. Forster described the young bird as *Muscicapa lutea* (1844 : 169) and the adult as the male of *Muscicapa atra* (p. 170) ; the Tongan bird which he thought was the female has not yet been identified. Murphy & Mathews do not mention a Tongan species in their paper on *Pomarea* (1928).

*157. ***Mohoua ochrocephala*** (Gm.), 1789. Yellow-head or Mohua.

Unsigned, finished painting. " *Muscicapa Chloris.* Queen Charlotte's Sound. S.C.Q.C.S. N.Z. 4. 3d. N. 1774." (D.) " Ge. Forster." (*Al.*)"—*ochrocephala* S.N.XIII : 944 n. 71."

Latham's account of the bird (1783 : 342). the basis of Gmelin's description, was founded on this drawing which is therefore the type. J. R. Forster's account of the species is dated April 4th, 1773, when they were at Dusky Sound (1844 : 87).

*158. ***Zosterops flavifrons flavifrons*** (Gm.), 1789. Yellow-fronted White-eye.

Unsigned, finished painting of a specimen collected in Tanna, New Hebrides. " *Muscicapa ? heteroclita.* Tana. Aug. 7th. 1774." (D.) " Ge. Forster." (*Al.*) "—*flavifrons* S.N.XIII : 944. n. 72."

Latham described this species (1783 : 343) from this drawing which can therefore be regarded as Gmelin's type. See also J. R. Forster, 1844 : 271.

A.M. 16.

159. ***Lalage leucopyga montrosieri*** Verreaux and des Murs, 1860. New Caledonian Caterpillar-catcher or Long-tailed Triller.

Unsigned, almost finished painting of a specimen collected September 1774 (1844 : 269). " *Muscicapa naevia* N. Caledonia." (*Al.*) " S.N.XIII : 944, n. 73."

I have followed Mayr & Ripley (1941) in using *Lalage* as the generic name of this bird. Gmelin described it in 1789 but employed a name that was pre-occupied; therefore the later name and description of the French authors became valid.

160. ***Cinclodes patagonicus*** (Gm.), 1789. Patagonian Cinclodes.

Unsigned, finished painting of a bird found feeding on the shore, 26th December, 1774, at Christmas Sound or nearby, in Terra del Fuego (1844 : 324). " Terra del Fuego." (*Al.*) " *Motacilla gracula* . . . *patagonica* S.N.XIII : 957."

The Forsters' specimens apparently went to the Leverian Museum where they were seen by Latham (1783 : 434).

161. ***Aphrastura spinicauda spinicauda*** (Gm.), 1789. Thorn-tailed Creeper.

Almost finished, unsigned painting. " *Motacilla seticauda*. Terra del Fuego. December 21st. 1774." (D.) " Thorn-tailed Warbler. Latham syn. 2. p. 463. n. 71. tab. 52 from this figure and the following." (*Al.*) "—*spinicauda* S.N.XIII : 978."

Latham's plate seems to be a composite of this painting and the pencil sketch on the next folio; he says that his material was derived from Banks's collection.

162. ***Aphrastura spinicauda spinicauda*** (Gm.), 1789. See f. 161.

Unsigned pencil sketch of the head, back and one wing, with a detailed drawing of the tail. (*Al.*) " *Motacilla seticauda*."

This drawing may not be by Georg Forster; his father refers to " Fig. pict. F. et G." (1844 : 328), dating his description 26th December, and it may be that he himself made this sketch; in his other references to artists he has given the whole name at least once.

*163. ***Scytalopus magellanicus*** (Gm.), 1789. Magellanic Babbler.

Unsigned, almost finished painting. " *Motacilla Magellanica*. Terra del Fuego. 28th December 1774." (D.) " Forster." (*Al.*) " S.N.XIII : 979. n. 137."

According to J. R. Forster (1844 : 327) these small Babblers feed amongst rocks and heaps of stones as does the European Wren. It was from this painting that Latham drew up his description (1783 : 464) and it is therefore the type.

164. ***Acanthisitta chloris*** (Sparrm.), 1787. Rifleman or Titi-pounamu.

Unsigned, finished painting of an adult female. " *Motacilla Citrinella*. Dusky Bay, New Zealand." (D.) " Ge. Forster." (*Al.*) "—a S.N.XIII : 979. n. 138."

This species was collected by the Forsters on 2nd April, 1773 (1844 : 89).
A.M. 15, M.E. 39.

*165. ***Xenicus longipes*** (Gm.), 1789. Bush Wren or Matuhi.

Unsigned, finished painting. " *Motacilla longipes*. E.Teetee tu poonom. New Zealand. Dusky Bay." (*Al.*) " S.N.XIII : 979. n. 139."

Georg Forster appears to have confused the Maori name of this wren with that of the Rifleman in the preceding painting. His father does not mention it in his account

(1844 : 88). Latham refers his description to this drawing (1783 : 465) which is thus the type.

*166. ***Finschia novaeseelandiae*** (Gm.), 1789. Brown Creeper or Pipipi.

Unsigned, finished painting of a specimen collected in New Zealand in 1773 (1844 : 90). " *Parus Urostigma.* Toe-Toe. Dusky Bay." (D.) " Ge. Forster." (*Al.*) "*—nova Seelandia* S.N.XIII : 1013."

Oliver (1930 : 478) thought that this painting had been reproduced by Gray in the *Voyage of the Erebus and Terror* (Zool., Birds, 1845) but the supposed copy lacks the streaks on the undersurface and the white eye-stripe which are so conspicuous in Forster's plate. J. R. Forster gives only a brief note on this species (1844 : 90). Latham based his account on this drawing which is therefore the type (1783 : 558).

167. ***Hirundo tahitica*** Gm., 1789. Tahitian Swallow.

Finished, unsigned painting of a specimen collected in 1774. " Taheitee." (*Al.*) "*Hirundo pyrrholaema, —tahitica* S.N.XIII : 1016."

Latham saw one of these swallows in Banks's collection. J. R. Forster's account is a detailed one (1844 : 241).

168. ***Collocalia leucophaea leucophaea*** (Beale), 1848. Tahitian Swiftlet.

Unsigned, finished painting of a bird collected in 1774 (1844 : 240). " *Hirundo peruviana.* Taheitee. (D.) " Forster." (*Al.*) " (Brisson b.) *—cinerea* S.N.XIII : 1026."

The synonymy of the species is discussed by Hartert (1892 : 502) who, however, does not refer to this painting. J. R. Forster thought that this swiftlet occurred in Peru as well as in Tahiti but this is not so.

8. BIRDS PAINTED BY AN UNKNOWN ARTIST ON COOK'S SECOND VOYAGE

Three sets of these paintings exist. The first is in the Royal Scottish Museum and each of the 38 paintings comprising it bear the letters M.E. and a number. M.E. is believed to stand for *Museum Edinense.* The possible identity of the painter is discussed in the notes on William Anderson who is believed to have owned the paintings. The second set is in the British Museum (Print Room). It was acquired by Banks who has written on the back of most of the plates " Captain Clarke [*sic*!] 1775." They are clearly by the artist responsible for the two other sets. The third set is now in the Mitchell Library, Sydney, but for many years it was in the Australian Museum and was generally regarded as the work of Georg Forster (Iredale, 1925) ; it includes copies of ten of his paintings This set was orginally in the possession of Admiral Isaac Smith, a cousin of Mrs. Cook's. He was with Cook on the Newfoundland survey, a midshipman then master's mate on the first voyage round the world, and master's mate on the *Resolution* on the second voyage. The paintings were bought by the Agent-General for New South Wales from Canon Frederick Bennett, the son of Mrs. Cook's executor and residuary legatee (Beaglehole, 1955, cxcvii, 590). Isaac Smith apparently named the birds and noted the localities long after the voyage, and much of his information is misleading. His MS. is pasted inside the volume and Canon Bennett copied his notes on to the drawings. The task of identifying the birds from photographs was made easier by the existence of 36 duplicates in the Edinburgh and London sets; later I was able to visit Sydney and examine the originals myself. I have assumed that on the whole the localities given by Banks are correct. See footnote p. 262.

(a) *Thirty-eight Coloured Drawings of Birds of the Southern Hemisphere, executed from the Life, in the Course of Captain Cook's Second Voyage. Royal Scottish Museum, ff.* 5–42.

5. ***Hemiphaga novaeseelandiae*** (Gm.), 1789. New Zealand Pigeon.

A.M. 26; Forster, f. 137.

6. ***Callaeas cinerea*** (Gm.), 1788. Orange-wattled Crow or South Island Kokako.

P.R. 12; Forster, f. 52; A.M. 19.

7. ***Creadion carunculatus*** (Gm.), 1789. Saddleback or Tieke of New Zealand.

A.M. 19; Forster, f. 144; Ellis, f. 73.

8. ***Conopoderas caffra longirostris*** (Gm.), 1789. Long-billed Warbler of the Society Islands. [Pl. 37*a*.]

A.M. 28; Forster, f. 55; Ellis, f. 76; Webber, f. 139.

9. ***Philemon diemensis*** (Lesson), 1831. New Caledonian Friar Bird.

P.R. 18; A.M. 21.

10. ***Myzomela cardinalis cardinalis*** (Gm.), 1788. Cardinal Honey-eater, New Hebrides.

A.M. 24; Forster, f. 63.

11. ***Glyciphila melanops*** (Lath.), 1801. Tawny-crowned Honey-eater, Tasmania.

Gadow has pointed out that some immature birds have a yellow patch on the throat (1884 : 211); this can be seen in some of the skins in the Museum and in this drawing. The Tasmanian race of this bird has a particularly long bill. Latham appears to have seen specimens.

A.M. 23.

12. ***Vini peruviana*** (P. L. S. Müller), 1776. Tahitian Blue Lory.

Parkinson, f. 9; Forster, f. 49; Ellis, f. 14; Webber, f. 140.

13. ***Ptilinopus porphyraceus porphyraceus*** (Temm.), 1821. Crimson-crowned Fruit Dove, Tonga.

A.M. 12; Forster, f. 141.

14. ***Graucalus caledonicus*** (Gm.), 1788. New Caledonian Cuckoo Shrike.

Forster, f. 53; P.R. 19; A.M. 6.

15. ***Halcyon chloris*** ? subsp. A White-collared Kingfisher.

The width of the superciliary stripe, the nuchal collar and the blue stripe below the eye, suggest that the race depicted is *erromangae* Mayr, 1938, from Erromanga in the New Hebrides; the pale undersurface, mainly white with a few faint touches of buff, is however more characteristic of *juliae* Heine, 1860 which occurs in the central New Hebrides and could have been collected in Malekula. The circumstances in which Cook landed on Erromanga make it unlikely that any collecting was done there apart from a water-snake which the Forsters caught from their boat.

16. ***Lichmera incana*** (Lath.), 1790. New Caledonian Honey-eater.

Latham copied his description of this species from Anderson's MS. (*Char. brev. avium in itin.* 1772–75 : 13). J. R. Forster described this bird as *Certhia chlorophaea* from New Caledonia (1844 : 264) but his son did not paint it.

17. ***Prosthemadera novaeseelandiae*** (Gm.), 1788. Tui or Parson-bird, New Zealand.

P.R. 23, 63; A.M. 20; Forster, f. 61; Ellis, f. 25.

18. ***Halcyon leucocephala actaeon*** (Lesson), 1830. Cape Verde Islands Kingfisher.

A.M. 10; Forster, f. 60.

19. ***Theristicus caudatus melanopis*** (Gm.), 1788. Black-faced Ibis, from New Year Island off Statenland.

P.R. 15, 22, 62; A.M. 52; Forster, f. 117.

20. ***Tachyeres pteneres*** (Forster), 1844. Magellanic Steamer Duck, Statenland.

Forster, f. 68.

21. ***Phalacrocorax magellanicus*** (Gm.), 1789. Magellanic or Rock Shag, Terra del Fuego.

A.M. 48; Forster, f. 105.

22. ***Phalacrocorax punctatus punctatus*** (Sparrm.), 1786. Spotted Shag or Parekareka, New Zealand.

23. ***Pelecanoides urinatrix urinatrix*** (Gm.), 1789. Common Diving Petrel or Kuaka, New Zealand.

Forster, f. 88.

24. ***Fregetta fuliginosa*** (Gm.), 1789. Latham's Sooty Petrel.

According to a note on the back of a duplicate, P.R. 10, of this painting, this bird was taken at Tahiti. It is very similar to the unique type specimen of *Fregetta moestissima* (Salvin), 1879, from Samoa. I have followed Bourne (1957) in his identification of the species which he has discussed in detail on the basis of these old illustrations, and with reference to recent work by Murphy & Snyder on *Fregetta albigularis* (Finsch), 1877.

25. ***Rallus philippensis swindellsi*** (Math.), 1911. New Caledonian Banded Rail.

A.M. 7.

26. ***Thinornis novaeseelandiae*** (Gm.), 1789. Sand Plover or Tuturuatu, New Zealand.

P.R. 11 ; Forster, f. 121.

27. ***?Poliolimnas cinereus tannensis*** (Forster), 1844. White-browed Crake, probably from Tanna, New Hebrides.

A.M. 8 ; Forster, f. 131.

28. ***Gallirallus australis australis*** (Sparrm.), 1786. South Island Weka of New Zealand.

The identification of this crude sketch would have been impossible had there not been two finished paintings, P.R. 17, 61, of the same bird, identical in outline, in the companion set in the Print Room. See also next folio.

29. ***Gallirallus australis australis*** (Sparrm.), 1786. South Island Weka of New Zealand.

A smaller and better drawing than f. 28.
P.R. 17, 61 ; A.M. 33 ; Forster, f. 126.

30. ***Gallicolumba erythroptera*** (Gm.), 1789. Latham's Garnet-winged Pigeon, probably from Tahiti.

Parkinson, f. 35 ; Forster, f. 136 ; Ellis, f. 71.

31. ***Chionis alba*** (Gm.), 1789. Sheath-bill, most probably from New Year Island off Statenland.

A.M. 51 ; Forster, f. 125.

32. ***Anthus novaeseelandiae*** (Gm.), 178. New Zealand Pipit.

Forster, f. 143 ; A.M. 31.

33. ***Anthornis melanura*** (Sparrm.), 1786. New Zealand Bellbird or Korimako.

A.M. 22 ; Forster, f. 62.

34. ***Pomarea nigra*** (Sparrm.). Society Islands Flycatcher.

F. 41, below, and Forster's f. 156 show a young bird of this species which was described (1844 : 169) as *Muscicapa lutea.*

35 ***Petroica multicolor multicolor*** (Gm.), 1789. Scarlet-breasted Robin of Norfolk Island.

This race differs from that of the New Hebrides in having much more white on the forehead.
A.M. 13 ; Forster, f. 150.

36. ***Chalcites lucidus*** (Gm.), 1788. Shining Cuckoo or Pipiwharauroa of New Zealand.
A.M. 5 ; Forster, f. 57.

37. ***Aplonis striatus striatus*** (Gm.), 1788. Glossy Starling, a female, New Caledonia.
A.M. 30 ; Forster, f. 54.

38. ***Pachycephala xanthetraea*** (Forster), 1844. New Caledonian Thickhead, a male.
A.M. 17.

39. ***Acanthisitta chloris*** (Sparrm.), 1787. Rifleman or Titi-pounamu of New Zealand.
A.M. 15 ; Forster, f. 164.

40. ***Porzana nigra*** (Miller), 1784. Polynesian Black or Sooty Rail, widely distributed in the Pacific islands
Forster, f. 130.

41. ***Pomarea nigra*** (Sparrm.), 1786. Society Islands Flycatcher, young bird.
See f. 34 for the adult. Forster, f. 156.

42. ***Gerygone flavolateralis*** (Gray), 1859. Fantail Warbler, New Caledonia.
A.M. 14.

(b) *Seventeen Paintings by an Unknown Artist Contained in Brit. Mus.* (*Print Room*) *Vol.* 199* *B* 4, *ff.* 7–23.

7. ***?Circus cyaneus*** Linn., 1766. Cinereous Harrier.

Unsigned painting. (B.) " Capt. Clarke 1775 Staten Land." (*Al.*) " Falcon."

Curiously enough this is the only record of this harrier from either the first or second voyages ; the painting is almost identical with A.M. 32, q.v., which is marked New Caledonia.

8. ***Eudyptula minor minor*** (Forster), 1781. Little Blue Penguin.

Unsigned painting. (B.) " New Zeland Captn. Clarke 1775. Spec. sic." " Sp. vin. from Captn. Cooke ", and " Georgia ", also in Banks's hand have been crossed through. (*Al.*) " *Aptenodytes minor* Forster."

The date perhaps denotes the year in which the plate was given to Banks ; the *Resolution* was in New Zealand both in 1773 and 1774 but not in 1775.
Forster, ff. 84, 85.

9. ***Aptenodytes patagonicus*** J. F. Miller, 1778. King Penguin.

Unsigned painting. (B.) " s Georgia Captn. Clarke 1775. et in sp. vin. Captn. Cooke." (*Al.*) " *Aptenodytes pataghonica* Forster." " *hyperpolius* " in the same hand has been crossed out.

This painting is rather a better representation of a King Penguin than Forster's f. 81. The *Resolution* visited South Georgia in 1775.
Ellis, f. 46 ; Webber, f. 124.

10. ***Fregetta fuliginosa*** (Gm.), 1789. Latham's Sooty Petrel.

Unsigned painting. (B.) " Captn. Clarke 1775 Otaheite." (*Al.*) " *Procellaria.*"

This painting is a close copy of M.E.24, and the identity of the species is discussed in the notes on that painting, which is not on the same type of paper.

11. ***Thinornis novaeseelandiae*** (Gm.), 1789. New Zealand Sand Plover, or Tuturuatu.

Unsigned painting. (B.) " Captn. Clarke 1775 New Zealand in sp. vin." (*Al.*) " *Charadrius torquatula* Forster."

This painting (on Whatman paper) and M.E. 26 are very similar indeed, but the latter is on different paper.

12. ***Callaeas cinerea*** (Gm.), 1788. South Island Kokako, or Orange-wattled Crow.

Unsigned painting. (B.) " New Zeland Captn. Clarke 1775." (*Al.*) " *Callaeas cinerea.*"

This is very similar to A.M. 19 and M.E. 6, except that in them the bough on which the bird stands is only a fragment of the tree shown in this painting.

Forster, f. 52.

13. ***Nestor meridionalis*** (Gm.), 1788. Green Kaka.

Unsigned painting. (B.) " New Zealand Captn. Clarke 1775." (*Al.*) " Latham p. 265–70 *Psittacus hypopolius* Forster."

The outline of this kaka is almost identical with that in the first painting of the Australian Museum series, but the former is a landscape and the latter an upright. The legs of both birds are ill-proportioned. In A.M. 1 the kaka is shown standing on a bare stump ; in the other the painter has drawn the stems of a curious New Zealand lily, the Supple-jack (*Rhipogonum scandens* Forster, 1776), twisting about the stump, and a tree-fern in the distance, details that were almost certainly noted on the spot. This latter painting is on Whatman paper.

Neither of these drawings resembles Georg Forster's representation of the same species, f. 50, or that by Ellis, f. 15.

14. ***Phalacrocorax punctatus*** (Sparrm.), 1786. Spotted Shag or Parekareka.

Unsigned painting. (B.) " [Ca]ptn. Clarke New Zeland 1775." (*Al.*) " *Pelecanus punctatu*[*s*] Forster."

This plate is very close to M.E. 22 and also A.M. 47 ; it does not resemble Forster's version of the same species, f. 103.

15. ***Theristicus caudatus melanopis*** (Gm.), 1789. Black-faced Ibis.

Unsigned painting. (B.) " [Christ]mas harbour Terra del Fuego Captn. Clarke 1775." (*Al.*) " *Tantalus melanops* Forster. *Tantalus.*"

There are three versions of this ibis in this volume : f. 22 is on the same paper as this one, and all the annotations are the same save that Banks's remarks have not been trimmed. F. 62 is a highly professional copy by Gertrude Metz, on Whatman paper. M.E. 19 is almost identical with ff. 15 and 22 but the carefully drawn legs and feet are uncoloured and there is no attempt at a background; it is on paper that differs from both kinds used in the B.M. versions. Forster's f. 117 differs from all of these and is more like Latham's (1785 : pl. 79), but Latham says (*op. cit.* : 109) " The specimen is in the collection of Sir Jos. Banks ", so none of these drawings is the type.

16. ***Sula leucogaster plotus*** Forster, 1844. Australian Brown Gannet of Booby.

Unsigned painting. (B.) " [Cap]tn Clarke [New] Caledonia." (*Al.*) " *Pelecanus fiber.*"

This appears to be identical with A.M. 46.

Forster, f. 108.

17. ***Gallirallus australis australis*** (Sparrm.), 1786. South Island Weka of New Zealand.

Unsigned painting. (B.) " New Zeland Captn. Clarke 1775." (*Al.*) " *Rallus Troglodytes* Forster."

This is a finished version of M.E. 28 which is so crude that it is scarcely recognizable. F. 61 in this volume is a highly professional copy by Gertrude Metz.

A.M. 33; M.E. 28, 29; Forster, f. 126.

18. ***Philemon diemensis*** (Lesson), 1831. New Caledonian Friar Bird.

Unsigned painting. No. MS. notes.

This is very similar to M.E. 9 but a less good representation of the bird in that the brownish colouring of the back is too much reduced.

19. ***Graucalus caledonicus*** (Gm.), 1788. New Caledonian Cuckoo Shrike.

Unsigned painting. Most of Banks's note on the back has been trimmed away but the remains of " Caledonia " can be made out and also " sicc.". (*Al.*) " *Corvus cinereus* Forster Lath. p 377 n.7."

This is a close copy of M.E. 14; Forster's f. 53 of this species is very different.

20. ***Eunymphicus cornutus*** (Gm.), 1788. Crested Parakeet.

Unsigned painting. (B.) " New Caledonia. Captn. Clarke 1775. [s]pec. sicc." (*Al.*) " *Psittacus bisetus* Forster Lath p. 248 n. 48."

This differs from Forster's plate of the species, and is not represented in the Edinburgh collection. It seems, however, to be a close copy of A.M. 3.

F. 64 in this volume is an accomplished study by Gertrude Metz of one of these parrots.

21. ***Sterna fuscata*** Linn., 1766. Sooty or Wideawake Tern.

Unsigned painting. (B.) " [Ca]ledonia." (*Al.*) " *Sterna serrata* Forster."

This is a copy of A.M. 44; Forster's f. 110 differs.

22. ***Theristicus caudatus melanopis*** (Gm.), 1789. Black-faced Ibis.

Unsigned painting. (B.) " Christmas Harbour Terra del Fuego Captn. Clarke 1775."

See f. 15.

23. ***Prosthemadera novaeseelandiae*** (Gm.), 1788. Tui or Parson-bird.

Unsigned painting. (*Al.*) " Lath. p. 602–17."

This is a much better painting than the Edinburgh version (M.E. 17). Forster's f. 61 differs considerably from both. F. 63 in this volume is a more professional but less accurate painting of a tui by Gertrude Metz.

(c) *Fifty-four Paintings by an Unknown Artist of Birds from Captain Cook's Second Voyage, formerly attributed to Georg Forster and Owned by the Australian Museum, now in the Mitchell Library, Sydney, ff.* 1–53.

1. ***Nestor meridionalis*** (Gm.), 1788. Green Kaka of New Zealand.

This was reproduced by Oliver (1930) as a Forster painting but it is not his work. P.R. 13 is very similar.

Forster, f. 50 ; Ellis, f. 15.

2. ***Cyanoramphus novaezelandiae*** (Sparrm.), 1787. Red-fronted Parakeet or Kakariki of New Zealand.

Forster, ff. 44–46 ; Ellis, f. 12.

3. ***Eunymphicus cornutus*** (Gm.), 1788. Crested Parakeet of New Caledonia.

This seems to be identical with P.R. 20, q.v.

P.R. 64 ; Forster, f. 43.

4. ***Eudynamis taitensis*** (Sparrm.), 1787. Long-tailed Cuckoo.

This bird breeds in New Zealand and winters in Tahiti and other Pacific islands.

Forster f. 56.

5. ***Chalcites lucidus*** (Gm.), 1788. Shining Cuckoo or Pipiwharauroa.

This species breeds in New Zealand and winters in the Solomon and other islands of the south-west Pacific.

This painting appears to be a copy of M.E. 36.

6. ***Graucalus caledonicus*** (Gm.), 1788. New Caledonian Cuckoo Shrike.

This is very similar to M.E. 14 and P.R. 19 but in those two there is much more detail in the background.

Forster, f. 53.

7. ***Rallus philippensis swindellsi*** (Math.), 1911. New Caledonian Banded Rail.

This is an obvious copy of M.E. 25, which represents the above rail, even the details of the background are very similar.

8. **? *Poliolimnas cinereus tannensis*** (Forster), 1844. White-browed Crake, probably from Tanna.

There is an MS. note " A small plover from New Zealand " on this painting but it is identical with M.E. 27 which is unfinished but has been tentatively identified as the above crake; the legs are too small but this is noticeable in nearly all the paintings by this artist.

Forster, f. 131.

9. ***Halcyon chloris*** ? subspecies. A White-collared Kingfisher.

This painting appears to be of the bird depicted in M.E. 15, q.v.

10. ***Halcyon leucocephala acteon*** (Lesson), 1830. Cape Verde Islands Kingfisher.

This is a copy of Georg Forster's f. 60. The bird is well done but the rest of the painting is poor and it seems unlikely that it is Forster's work.

M.E. 18 is quite a different painting of this species.

11. ***Ducula pacifica pacifica*** (Gm.), 1789. Pacific Pigeon.

This was probably taken at Tonga where Georg Forster painted this widespread Pacific species.

Ellis, f. 72; Forster, f. 139.

12. ***Ptilinopus porphyraceus porphyraceus*** (Temm.), 1821. Crimson-crowned Fruit Pigeon of Tonga.

This appears to be a copy of M.E. 13.

See also Forster, f. 141. Iredale gives Tahiti as the locality and quotes this species as Forster, f. 140, but this seems to be a typographical slip since the latter drawing (q.v.) represents another pigeon.

13. ***Petroica multicolor multicolor*** (Gm.), 1789. Scarlet-breasted Robin of Norfolk Island.

Apparently a close copy of M.E. 35.

Forster, f. 150.

14. ***Gerygone flavolateralis*** (Gray), 1859. Fantail Warbler of New Caledonia.

This painting is similar to M.E.42.

15. ***Acanthisitta chloris*** (Sparrm.), 1787. Rifleman or Titi-pounamu of New Zealand.

Apparently a close copy of M.E. 39.

Forster, f. 164.

16. ***Zosterops flavifrons flavifrons*** (Gm.), 1789. Yellow-fronted White-eye from Tanna, New Hebrides.

Forster, f. 158.

17. ***Pachycephala xanthetraea*** (Forster), 1844. New Caledonian Thickhead, a male.

Apparently a close copy of M.E. 38.

18. ***Creadion carunculatus*** (Gm.), 1789. Saddleback or Tieke of New Zealand.

Apparently a close copy of M.E. 7.

Forster, f. 144; Ellis, f, 73.

19. ***Callaeas cinerea*** (Gm.), 1788. Orange-wattled Crow or South Island Kokako.

Apparently a copy of M.E. 6 and P.R. 12.
Forster, f. 52.

20. ***Prosthemadera novaeseelandiae*** (Gm.), 1788. Tui or Parson-bird of New Zealand.

Apparently a copy of P.R. 23.
Forster, f. 61 ; M.E. 17 ; P.R. 23, 63 ; Ellis, f. 25.

21. ***Philemon diemenensis*** (Lesson). New Caledonian Friar Bird.

Apparently a close copy of M.E. 9.
P.R. 18.

22. ***Anthornis melanura*** (Sparrm.), 1786. New Zealand Bellbird or Korimako.

Apparently a close copy of M.E. 33.
Forster, f. 62.

23. ***Glyciphila melanops*** (Lath.), 1801. Tawny-crowned Honey-eater of Tasmania.

Apparently a close copy of M.E. 11.

24. ***Myzomela cardinalis cardinalis*** (Gm.), 1788. Cardinal Honey-eater of the New Hebrides.

Apparently a close copy of M.E. 10.
Forster, f. 63.

25. ***Myiagra caledonica*** Bonaparte, 1857. Broad-billed Flycatcher.

This painting shows the bird's head tilted slightly so that the width of the bill is noticeable, and there seems no doubt that it is intended to be a representation of this flycatcher. The Prussian blue of the head, upper back and breast, and absence of white on the rump preclude its being the White-breasted Wood Swallow, as Iredale suggested.

26. ***Hemiphaga novaeseelandiae novaeseelandiae*** (Gm.), 1789. New Zealand Pigeon or Kereru.

This appears to be a copy of M.E. 5.
Forster, f. 137.

27. ***Hemiphaga novaeseelandiae spadicea*** (Latham), 1801.

Norfolk Island Pigeon, now extinct.

28. ***Conopoderas caffra longirostris*** (Gm.). Long-billed Warbler of the Society Islands.

Apparently a copy of M.E. 8.
Forster, f. 55 ; Ellis, f. 76 ; Webber, f. 139.

29. ***Turnagra capensis*** (Sparrm.), 1789. South Island Thrush or Piopio of New Zealand.

Forster, f. 145.

30. ***Aplonis striatus*** (Gm.). Glossy Starling, female, New Caledonia.

According to Iredale this is a representation of the New Zealand Robin *Petroica* (*Miro*) *australis* (Sparrm.), 1788, but we find this difficult to accept. It is a fair representation of the New Caledonian bird.

M.E. 37.

31. ***Anthus novaeseelandiae*** (Gm.), 1789. New Zealand Pipit.

Apparently a copy of M.E. 39.

Forster, f. 143.

32. ***? Circus approximans*** Peale. New Caledonian Harrier.

The identity of this harrier is doubtful since the painting is almost identical in detail with P.R. 7 (*q.v.*) which appears to represent a harrier from Staten Land. Reinhold Forster recorded a harrier from the Isle of Pines (1844 : 257) so that in this instance we should not perhaps doubt the locality, New Caledonia, given by Isaac Smith. Nevertheless there is such a close resemblance between the two paintings that it seems clear that they are intended to represent the same bird.

33. ***Gallirallus australis*** (Sparrm.), 1786. South Island Weka of New Zealand.

A finished version of M.E. 28 ; the details of the feet and tail are closer in outline to that preliminary sketch q.v. than to the finished study of P.R. 17.

P.R. 61 ; M.E. 28, 29 ; Forster, f. 126.

34. ***Chloephaga hybrida*** (Molina), 1782. Kelp Goose of Terra del Fuego.

The light colour of the beak, the white tail and other details of this plate show that it is intended to represent the female Kelp Goose which was painted in an almost identical position by Forster, f. 66. The locality, New Zealand, on the A.M. plate is obviously incorrect.

35. ***Tachyeres pteneres*** (Forster), 1844. Magellanic Steamer Duck.

Apparently a copy of M.E. 20.

Forster, f. 68.

36. ***Pterodroma macroptera*** (Smith), 1840. Great-winged Petrel.

This is a poor version of Forster's f. 93b.

37, 37a. ***Daption capensis*** (Linn.), 1758. Cape Pigeon or Pintado Bird.

The first of these two drawings is a poor copy of Forster's f. 96. The second differs in some respects.

38. ***Thalassoica antarctica*** (Gm.), 1789. Antarctic Petrel.

This is an inadequate version of Forster's f. 95 which is a fine piece of work.

39. ***Pagodroma nivea*** (Forster), 1777. Snow Petrel.

This is not Forster's work; there are two studies of this bird by him, ff. 89, 90. See also f. 53 below.

40. ***Halobaena caerulea*** (Gm.), 1789. Blue Petrel.

A copy of Forster's f. 86.

41. ***Pachyptila vittata*** (Forster), 1777. Broad-billed Whale Bird.

A copy of Forster's f. 87, lacking the little additional sketch of the head in the original.

42. ***Fulmarus glacialoides*** (Smith), 1840. Silver-grey Petrel.

A fair copy of Forster's f. 91.

43. ***Diomedea exulans*** Linn., 1758. Wandering Albatross.

A fair copy of Forster's f. 99.

44. ***Sterna fuscata*** Linn., 1766. Wideawake or Sooty Tern.

This appears to be identical with P.R. 21.
Forster, f. 110.

45. ***Sterna sumatrana*** Raffles, 1822. Black-naped Tern.

A painting of an immature bird.

46. ***Sula leucogaster plotus*** Forster, 1844. Australian Brown Gannet or Booby.

This appears to be identical with P.R. 16; the background was washed in first so that the horizon shows through the white breast in both paintings.
Forster, f. 108.

47. ***Phalacrocorax punctatus*** (Sparrm.), 1786. Spotted Shag or Parekareka of New Zealand.

This is a close copy of M.E. 22 and differs from P.R. 14 in only one or two insignificant details.
Forster, f. 103.

48. ***Phalacrocorax magellanicus*** (Gm.), 1789. Magellanic or Rock Shag of Terra del Fuego.

A close copy of M.E. 21. The horizon line cuts through the white breast of the bird in both cases.

49. ***Phoebetria palpebrata*** (Forst.), 1785. Light-mantled Sooty Albatross.

A good copy of Forster's f. 102.

50. ***Pygoscelis antarctica*** (Forster), 1781. Bearded Penguin.

A fair copy of Forster's f. 82.

51. ***Chionis alba*** (Gm.), 1789. Sheath-bill from Statenland.

A close copy of M.E. 31. The staining or discoloration in both plates is so similar that one can only conclude that they were made at one time and the same paint used for both.

Forster, f. 125.

52. ***Theristicus caudatus melanopis*** (Gm.), 1789. Black-faced Ibis.

The other drawings of this ibis are discussed in the notes on P.R. 15.

53. ***Pagodroma nivea*** (Forster), 1777. Snow Petrel.

A fair copy of Forster's f. 89. See also his f. 90, and f. 39 above.

9. BIRDS PAINTED BY WILLIAM ELLIS ON COOK'S THIRD VOYAGE, 1776–78

Paintings by William Ellis (90) *in a Volume of His Unpublished Drawings in Brit. Mus.* (*Nat. Hist.*) *Zoology Library, ff.* 7–96.

Ellis's plates are water-colour drawings of considerable charm and delicacy. In many cases he included accurate life-size pen and ink sketches of the head which has helped in identifying the species.

7. ***Falco peregrinus (? japonensis*** Gm.), 1788. Siberian Peregrine Falcon.

Signed painting. " W. W. Ellis ad. viv. delint. et pinxt. 1779. Flew on board off Japan." (*Al.*) " Oriental Falcon Lath. p.34 n. 7c ".

Since these peregrine falcons vary according to age and sex, and from one part of their range to another, it is difficult to identify this drawing with certainty. The bird depicted does not altogether agree with Latham's description (1781 : 33–34*) of the " Japonese Hawk " that flew on board off the coast of Japan but the narrow moustachial stripe, the spots on the upper surface of the tail and the general colouring show less resemblance to *F. peregrinus pealei* Ridgway, 1873 than to the British Museum skins of *F. p. harterti* Buturlin, 1907 which, according to Friedmann (1950 : 665) and Stresemann (1949 : 253), should probably become a synonym of *F. peregrinus japonensis* Gm. It is curious that there is no reference to this bird in the official account of the voyage.

8. ***Surnia ulula caparoch*** (P. L. S. Müller), 1776. American Hawk Owl.

Unsigned painting. " Sandwich Sound, N.W. Coast of America." (D.) " W. Ellis." (*Al.*) " *Strix funerea.*"

Sandwich Sound is now known as Prince William Sound, NE. of Kodiak Island. Sharpe correctly identified this bird as *S. ulula* (Linn.), 1758, with a reference to his own work (1875 : 131) where he places *caparoch* Müller in the synonymy of *S. ulula*. Müller's description was based on Edward's pl. 62 (1747) which represented a bird from Hudson Bay, but Müller incorrectly gave Europe as the habitat.

Stresemann (1949 : 250) considers that Ellis's painting represents Tengmalm's Owl, *Aegolius funereus richardsoni* (Bonaparte), 1838. It seems that he cannot have had an opportunity of examining it himself since the transverse barring of the undersurface, the length and markings of the tail and the arrangement of the spots on the upper surface of the wing, as well as some other characters, show that it is quite a different species from *A. funereus*.

9. ***Aplonis tabuensis tabuensis*** (Gm.), 1788. Polynesian or Striped Starling.

Signed painting. " W. W. Ellis ad. viv. delint. et pinxt. 1778. The Friendly Isles." (*Al.*) " Lath. sup. 164–9."

Latham described this bird from a specimen in the Leverian Museum (1781 : 164).

10. ***Kittacincla malabarica macroura*** (Gm.), 1789. Shama.

Signed painting. " W. Ellis ad. viv : delint. et pinxt. 1780. Pulo Condore."

One of these Shamas was in the Leverian Museum.

11. ***Prosopeia tabuensis tabuensis*** (Gm.), 1788. Red-breasted Musk Parrot.

There is a pencil sketch of the head as well as the painting of the whole bird on this signed plate. " From Middleburgh." (D.) " W. Ellis." (*Al.*) " *Psittacus hysginus* Forster Lath. p.214 n. 16."

Sharpe thought that this bird from the Friendly Isles could not be *P. tabuensis* since it lacks the crescentric blue collar described and illustrated by Latham (1781 : 214) ; other specimens however, lack this character too, and it appears that the population on Eua (Middleburgh) is a hybrid one the origins of which are discussed in the notes on Forster's f. 42.

12. ***Cyanoramphus novaezelandiae*** (Sparrm.), 1787. Red-fronted Parrakeet or Kakariki.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1777. New Zealand." (*Al.*) " Latham p. 252–56 *Psittacus pacificus* Forster."

Forster, ff. 44–46 ; A.M. 2.

13. ***Vini australis*** (Gm.), 1788. Blue-crowned Lory.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778. Friendly Isles." (*Al.*) " *P. euchloris* Forst. Latham p. 254–58."

Latham's description of this lory was based on a bird in the Leverian Museum.

14. ***Vini peruviana*** (P. L. S. Müller), 1776. Tahitian Blue Lory.

Signed painting. " Willl : Ellis ad viv : delint : et pinxt : 1778 Otaheite." (*Al.*) " Latham p. 255–59 *Psitacus saphirinus* Forst."

For full notes on this bird see Parkinson, f. 9.
Forster, f. 49 ; M.E. 12 ; Webber, f. 140.

15. ***Nestor meridionalis*** (Gm.), 1788. Green Kaka.

Pencil sketch of the head as well as a painting of the whole bird. Unsigned. " New Zealand." (D.) W. Ellis. (*Al.*) " Latham p. 264–70. *Psitacus hypopolius* Forster."

Forster, f. 50 ; A.M. 1 ; P.R. 13.

16. ***Platycercus caledonicus*** (Gm.), 1788. Green Rosella, Green Parrot or Yellow-bellied Parrakeet.

Pen and ink sketch of the head as well as the painting of the whole bird. Signed. " W. Ellis ad vivum delint : et pinxt : 1777. Adventure Bay New Holland." (*Al.*) "*flaviventris.*"

Latham saw this Tasmanian bird in Banks's collection ; he erroneously stated (1781 : 248–249) that it came from New Caledonia, and suggested that it was perhaps the female of *Eunymphicus cornutus* (Gm.), 1788 which is found only in that island and the Loyalty group ; his mistake was perpetuated by Gmelin in his choice of the specific name.

17. ***Dissemurus paradiseus*** Greater Racket-tailed Drongo.

Unsigned pencil sketches, one of the entire bird, the other of a head only. " Princes Island and Pulo Condore." (D.) " W. Ellis."

Here is perhaps the place to quote a description of a drongo which occurs on a single sheet of Ellis's MS. notes on the plants and animals of Pulo Condore ; this MS. is bound with these paintings.

" *Coracias.* C. atro-viridis, caudâ sub-forficatâ ; pennis duabus exterioribus longissimis, medio denudatis apice intortis. Habitat in Insula Pulo-Condore.—Tota avis atro-viridis, rostro pedibusque exceptis, quibus nigris sunt. Alae subtus alba maculatae, et crissum.—Retrices 10. Nares pennis setaceis secumbentibus obtecta. Pennae frontis erectae."

The upper sketch of a bird with short rackets appears to represent *Dicrurus paradiseus platurus* Vieillot, 1817 from Princes Island, and the lower one, the subject of Ellis's notes, the head of *Dicrurus paradiseus hypoballus* Oberholser, 1926, from Pulo Condore. Stresemann considers (1950 : 81) that one of these birds is *D. p. malayensis* (Blyth, 1859) which Vaurie (1949) places in the synonymy of *D. p. hypoballus*, but that the other is *D. p. formosus.* The large size of the crest in *formosus*, however, seems to preclude its being either of the birds figured by Ellis, whereas skins of *platurus* in the British Museum agree with the upper sketch. Ellis's note on the spots beneath the wing and on the under-tail coverts of the bird from Pulo Condore (i.e. *hypoballus*, the subject of the lower sketch) does not necessarily imply that this was an immature bird as some of these spots persist and are bright and distinct in birds that are adult. We are not altogether satisfied with Stresemann's identification of *D. p. formosus* with Latham's Tropic Crow, *Corvus tropicus* Gmelin, 1788, which was said to be a bird from Hawaii with no crest or rackets and with a rounded tail ; its size and iridescent plumage, however, make it clear that it is not the Hawaiian Crow, *Corvus hawaiiensis* Peale, 1848.

18. ***Lalage natka*** (Gm.), 1788. Polynesian Triller, one of the cuckoo-shrikes.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778." (D.) " 9′10. Friendly Isles. Ellis." (*Al.*) " *T. pacificus* Lath. ? "

This painting was identified by Sharpe as *Lalage pacifica* Gm., 1789, which was based on Latham's Pacific Thrush (1783 : 38). Ellis's bird agrees with the description except that Latham does not mention the white marks on the wing or the pale grey of the rump ; he does not say whether he had a specimen or a drawing. Stresemann (1950 : 73) considers that Latham's description refers to a female or a young bird, and that the male was described as *Lanius natka* by Gmelin (1788 : 309) from Pennant's Natka Shrike (1785 : 239).

Mathews (1930 : 548) thought that Gmelin's description was not applicable to any *Lalage* ; he makes no reference to Ellis's illustration. He was followed by Mayr & Ripley (1941 : 7–8) who suggest that, in the absence of the type, *L. pacifica* is now indeterminable. Skins of a new race described by them, *Lalage maculosa tabuensis* from Tonga, however, compare very favourably with Ellis's painting (Stresemann, *loc. cit.*) and there seems no doubt that Gmelin's *Lanius natka* (said to come from Natka, i.e. Nootka) was one of these birds. In a number of cases wrong localities were published for the birds and other animals brought back from these voyages.

19. ***Colaptes cafer*** (Gm.), 1788. North-western Flicker.

Signed painting. " W. Ellis ad viv : delt : et pinxt : 1778. King Georges' Sound." (*Al.*) " *Picus auratus.*"

Latham described *C. cafer* as var. A of the Gold-winged Woodpecker (1782 : 599) from the Cape of Good Hope instead of the Bay of Good Hope which was the old name for the entrance to King George's or Nootka Sound. Gmelin therefore gave it a specific name suggesting South Africa as its home (Palmer, 1916).

Webber, f. 136.

20. ***Picoides tridactylus fasciatus*** Baird, 1870. Alaskan Three-toed Woodpecker.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778. Norton Sound."

Picoides tridactylus tridactylus had been described from Europe by Linnaeus in 1758 and it was not until 1870 that the Alaskan birds were separated as a distinct race.

Webber, f. 138.

21. ***Sitta europaea albifrons*** Tacz., 1882. Northern Nuthatch.

Signed painting. " W. Ellis ad viv : delint : et pinxt : 1779. Kamtschatka. Pedibus ambulatoriis." (*Al.*) " *Sitta europaea.*"

22. ***Halcyon tuta*** (Gm.), 1788. Latham's Respected Kingfisher.

Pen and ink sketch of the head as well as a signed painting of the whole bird. " W. W. Ellis ad viv : delint : et pinxt : 1777. Otaheitee."

Sharpe apparently considered that this was a painting of a kingfisher which he had named *Todirhamphus wiglesworthi* (1906 : 182, 201). His remarks on the synonymy of the species are a little confusing since he was not aware that Gmelin's description was based on Latham's account of a young bird which is olive green above whereas the adult, which was painted by Ellis, is a brilliant greenish-blue. The type is in the Rijksmuseum in Leiden, and must have been brought back from this voyage.

23. ***Halcyon venerata ? youngi*** (Sharpe), 1892. Venerated Kingfisher.

Unsigned painting. " Friendly and Society Isles. (Otaheiti-Errooro) (Ulietea–Tautoria)." (D.) " Ellis."

This pale bird is more like *H. venerata youngi* than *H. venerata venerata* Gm., 1788. Neither Forster nor Ellis remarked on the presence of the distinct varieties which occur in the islands of the Society group. Since *youngi* is thought to be confined to Moorea it is possible that Ellis's bird, which was collected at either Raiatea (Ulietea) or Tahiti, may have been taken there by the natives. I am grateful to Dr. Mayr for this suggestion; he tells me that he knows of several records of kingfishers having been moved about the islands in this way.

24. ***Promerops cafer*** (Linn.), 1766. Cape Sugar Bird.

Unsigned painting. " Cape of Good Hope." (D.) " W. Ellis."

25. ***Prosthemadera novaeseelandiae*** (Gm.), 1788. Tui or Parson-bird.

Unsigned painting. " New Zealand." (*Al.*) " *Certhia cincinnata* Forster."

The first illustration of this bird was published in 1776 by Peter Brown, a Dane who worked for Pennant; a comment on it has already been made, see Forster, f. 61.

M.E. 17, A.M. 20; P.R. 23, 63.

26. ***Moho nobilis*** (Merrem), 1786. Double-plumed Moho; the native name for this bird is in fact O-o.

There are two pen and ink drawings of the head in addition to the signed painting. " W. W. Ellis delint: et pinxt: ad viv: 1779. Sandwich Isles." (*Al.*) " Lath. 683–18."

Merrem (1784: 9) tells us that he described this species from a bird that was sent with a very fine collection of New Zealand works of art to the Göttingen Museum by King George of England, Elector of Hanover. He published its scientific name in the Latin translation of his book which appeared in 1786. In their interesting notes on the Moho, Wilson & Evans (1890–99) give an account of the use that was made of the yellow feathers in the cloaks of Hawaiian royalty. Ellis himself remarks (1783) that the feathers were used in fly flaps for people of high rank while the *hoi polloi* were obliged to employ cocks' feathers for the same purpose. This beautiful bird has apparently become extinct.

27. ***Drepanis pacifica*** (Gm.), 1788. Yellow-rumped Mamo.

Signed painting. " W. W. Ellis ad vivum delint: et pinxt: 1779."

Gmelin's description of the Mamo was based on Latham's account of a bird in the Leverian Museum. According to Rothschild (1907) there are specimens in Leyden and Vienna and four other museums. Living birds have not been seen since 1898 (Bryan & Greenway, 1944).

Webber, f. 129.

28. ***Hemignathus obscurus*** (Gm.), 1788. Hook-billed Green Creeper or Akialoa.

Signed painting. " W. W. Ellis ad viv: delint: et pinxt: 1779. Sandwich Isles. (*Al.*) " Lath. p.703 n.4."

The birds from which Latham drew up his account were in the Leverian Museum and at its final disposal one specimen was bought by Lord Derby and the other by Temminck.

Webber, f. 130.

29. ***Vestiaria coccinea*** (G. Forst.), 1780. Red Sickle-bill, Olokele or Iiwi; an adult female above and an immature bird below.

Signed painting. " W. W. Ellis ad viv: delint: et pinxt: 1779. Sandwich Isles." (*Al.*) " Lath. p.704. n.5."

Bartholdi Lohmann, one of Cook's seamen, took four skins of this species to Cassel where Georg Forster saw and described them in the first volume of the *Göttingisches Magazin* which was largely devoted to travel.

Webber, f. 133.

30. ***Himatione sanguinea*** (Gm.), 1788. Crimson Creeper or Apapane.

Signed painting. " W. W. Ellis ad viv: delint: et pinxt: 1779. Sandwich Isles." (*Al.*) " Lath. p.739. n.43."

It was described by Latham from a specimen in the Leverian Museum. According to Wilson & Evans (1890–99) there are many references to the Apapane and its sweet song in Hawaiian legends.

Webber, f. 132.

31. ***Chlorodrepanis virens*** (Gm.), 1788. Olive-green Creeper or Amakihi; the upper figure is a male and the lower a female.

Signed painting. " W. Ellis ad viv: delint: et pinxt: 1779. Sandwich Isles."

One of these birds was part of the Hawaiian collection in the Leverian Museum.
Webber, f. 128.

32. ***Selasphorus rufus*** (Gm.), 1788. Rufous Humming Bird.

This charming painting was the upper part of a plate but some philistine cut it in half; the rest is f. 60 which is signed. " King George's Sound." (D.) " W. Ellis." (*Al.*) " *Trochilus.*"

Latham described this as the Ruff-necked Humming Bird (1782 : 785). He does not disclose the source of his information about this species.

33. ***Clangula hyemalis*** (Linn.), 1758. Long-tailed Duck.

A pen and ink sketch of the head as well as the painting; signed plate. " W. W. Ellis ad viv: delint: et pinxt: 1779. Kamtschatka." (*Al.*) " *Anas hyemalis.*"

34. ***Histrionicus histrionicus pacificus*** W. S. Brooks, 1915. Harlequin Duck.

In this unsigned painting the legs and feet are uncoloured. " Kamtschatka." (D.) " W. Ellis." (*Al.*) " *Anas histrionica.*"

Linnaeus described the nominate species of this duck from North America in 1758 but it was not until 1915 that the Pacific race was separated as a distinct one.
Webber, f. 126.

35. ***Polysticta stelleri*** (Pallas), 1769. Steller's Eider.

Unsigned painting. " Kamtschatka." (D.) " W. Ellis." (*Al.*) " *Anas stelleri.*"

36. ***Mergus serrator*** (Linn.), 1758. Red-breasted Merganser.

Unsigned painting. "Sandwich Sound. N.W. Coast of America." (D.) " W. Ellis." (*Al.*) " *Mergus serrator* Faemina."

37. ***Lunda cirrhata*** (Pall.), 1769. Tufted Puffin.

Signed painting. " W. Ellis ad vivum delint. et pinxit. 1778. Coast between Asia and America." (*Al.*) " *Alca cirrhata.*"

38. ***Aethia cristatella*** (Pall.), 1769. Crested Auklet.

Painting of the top of the head in addition to one of the whole bird ; signed. " W. Ellis ad vivum delint: et pinxt: 1778. Bird Island between Asia and America." (*Al.*) " *Alca cristatella.*"

Bird Island is another name for St. Matthew Island between the Pribiloff group and Bering Straits. A skin from this expedition was in Bullock's Museum (1816 : 42).

39. ***Macronectes giganteus*** (Gm.), 1789. Giant Petrel, Nellie or Bone-breaker.

Signed painting of the whole bird with a pen and ink sketch of the beak. " W. Ellis ad vivum delint : et pinxt : 1776. Island of Desolation." (*Al.*) " *Procellaria gigantea.*"

The Island of Desolation was Cook's name for Kerguelen Land.

40. ***Puffinus tenuirostris*** (Temm.), 1835. Short-tailed Shearwater.

Signed painting. " W. W. Ellis ad—delint : et pinxt : Amongst the ice." (*Al.*) " between Asia and America."

The date and the word *vivum* have both been cut off, and the locality added in a hand very different from Ellis's. " Between Asia and America " was also written on the back of f. 41 in the same hand, and the fresh dark pencil suggests that it was written long after Ellis's note " amongst the ice." Sharpe (1906) considered that this painting was unidentifiable but Stresemann (1953 : 371) considers that it represents *Puffinus tenuirostris* and we agree with him.

41. ***Fulmarus glacialis rodgersii*** Cassin, 1863. Pacific Fulmar ; the light phase of the North Pacific race.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1779. Amongst the ice." (*Al.*) " Between America and Asia."

Sharpe (1906 : 203) thought that this was a *Diomedea* sp. but Ellis was familiar with albatrosses and the bill in his drawing is clearly that of a petrel. Mathews (1912–13 : 124) believed it to be a good representation of the Grey Petrel or Pediunker *Adamastor cinereus* Gm., 1789 but it is unlikely that that petrel of the southern oceans should have been found in Bering Straits, and in any case the painting closely resembles the Pacific Fulmar.

42. ***Fulmarus glacialis rodgersii*** Cassin, 1863. Pacific Fulmar; the dark phase of the north Pacific race.

Signed painting. " W. W. Ellis ad viv : delin - - - et pinxt : 1779. Amongst the ice."

Sharpe thought that this was *Macronectes giganteus* (f. 39) a petrel confined to the southern oceans, and seldom recorded north of the Tropic of Cancer, save once on the west coast of America. However, although in this painting the bill is rather massive and not well proportioned the details of the lower mandible are typical of the Pacific Fulmar and not of *Macronectes*, the bill of which was accurately drawn by Ellis in f. 39.

43. ***?Pachyptila belcheri*** (Math.), 1912. Slender-billed Whale-bird.

A pen and ink sketch at the bottom of the plate possibly represents another species. Signed plate. " W. W. Ellis ad viv : delint : et pinxt : 1776. Island of Desolation." (*Al.*) " *Pro. desolata.*" [Pl. 37b.]

The slender structure of the beak and the distance between the nostrils and the nail suggest that Ellis's painting of the whole bird may represent *belcheri* and not *Pachyptila desolata* (Gmelin), 1789 as Sharpe thought (1906). It seems to have been Ellis's usual practice to make his detailed sketches life-size and in the pen and ink one of the head (below the painting) the bill itself is too small to be that of any prion other than *Pachyptila turtur* (Kuhl), 1820, while the distance between the nostrils and the nail of the beak is much less in proportion than in the painting, a character again suggesting *turtur* rather than *belcheri*. There is, however, no drawing from the dorsal aspect, and according to Falla (1940) only the *crassirostris* forms of the *P. turtur* assemblage occur at Kerguelen Land. Since but one skin of *P. crassirostris* exists in the British Museum, this plate of Ellis's has been reproduced in the hope that someone more familiar with the prions than is the writer may be able to form an opinion about its identity.

Parkinson, f. 15.

44. ***Diomedea exulans*** Linn., 1758. Wandering Albatross.

A pen and ink sketch of the bill at the bottom of the plate; unsigned. " Albatross, —at sea between Van Diemens Land and New Zealand." (D.) " W. Ellis." (*Al.*) " *Diomedea exulans.*"

Parkinson, f. 25; Forster, f. 99; A.M. 43.

45. ***Eudyptes crestatus filholi*** (Hutton), 1879. Rockhopper Penguin.

Signed plate. Ellis painted two birds and made a pencil sketch of the head of the one with the more conspicuous crest. " W. Ellis ad vivum delint : & pinxit : 1776 Kerguelen's Land. Island of Desolation." (*Al.*) " *Aptenodytes chrysocoma* Forster."

Since in all the figures the superciliary streak, from which the tufts of the crest arise, begins only slightly in front of the eye, there seems to be little doubt that *filholi* is the race depicted.

46. ***Aptenodytes patagonicus*** J. F. Miller, 1778. King Penguin.

Unsigned painting, with a pen and ink sketch of the head and a small one of the foot. " Kerguelens Land. Island of Desolation." (D.) " W. Ellis." (*Al.*) " *Aptenodytes patachonica* (*hyperrhina*) Forster."

King Penguins have been divided into two races but Murphy doubts whether these are admissable (1936 : 354).

Webber, f. 124 ; Forster, f. 81 ; P.R. 9.

47. ***Sula dactylatra personata*** Gould, 1846. Australian Masked Gannet.

A large signed painting of the head and a small one of the bird in flight. " W. W. Ellis ad vivum delt : & pinxt : 1777. Turtle Island."

Turtle Island is another name for Christmas Island in the Line Islands. A different Turtle Island, west of Tonga, was visited on Cook's second voyage, in July 1774.

Forster, f. 107.

48. ***Phaëton rubricauda melanorhynchos*** Gm., 1789. Red-tailed Tropic Bird.

Painting of an adult and an egg, with a pen and ink sketch of the head. " W. Ellis ad vivum delt : & pinxit. 1777. Palmerston Island."

Parkinson, f. 31 ; Solander MS. Z4 : 29–30.

49. ***Cepphus columba columba*** Pall., 1811. Pigeon Guillemot.

" W. Ellis ad vivum del & pinxt. 1778. Unalaschka." (D.) " W. Ellis." (*Al.*) " *Colymbus grylle.*"

This is the Pacific representative of the Black Guillemot of the North Atlantic Ocean.

50. ***Uria lomvia arra*** (Pall.), 1811. Pallas's Murre or Guillemot.

Signed painting. " W. Ellis ad vivum delint : et pinxt. 1778. Unalaschka." (D.) " W. Ellis." (*Al.*) " *Colymbus troile.*"

51. ***Rissa tridactyla pollicaris*** Ridgway, 1884. The Pacific Kittiwake.

Signed painting, with a pen and ink sketch of the head. " W. Ellis ad vivum delint : et pinxt : 1778. Kamtschatka." (*Al.*) " *Larus tridactylus* L."

Var. 2 of Latham's Tarrock Gull (1785 : 383) is this kittiwake. The European race was mentioned by Solander, MS. Z4 : 37.

52. ***Larus ? marinus schistisagus*** Stejneger, 1884. The Slaty-backed Gull.

Signed painting with a pen and ink sketch of the head. " W. W. Ellis ad viv : delt : et pinxt : 1779. Kamtschatka." (*Al.*) " *Larus canus* L."

Sharpe stated (1906) " apparently *Larus vegae,* " i.e. one of the Herring Gulls, but it seems rather too dark and we are inclined to think that Stresemann (1953 : 371) is right in suggesting that it may be the Slaty-backed Gull. On the other hand Ellis's sketch of the head is small for a representation of *schistisagus* and is closer in this respect to *Larus argentatus vegae* Palmén. Both birds occur at Kamtschatka.

53. ***Anous stolidus pileatus*** (Scop.), 1786. Common Noddy.

Unsigned painting with a pencil sketch of the head. " Palmerston Island." (D.) " W. Ellis." (*Al.*) " *Sterna stolida.*"

54. ***Sterna vittata vittata*** Gm., 1789. Wreathed or Swallow-tailed Tern.

Coloured plate, signed, with pen and ink sketch of the head. " W. W. Ellis ad viv : delint : et pinxt : 1776. Isle of Desolation."

In Latham's account of this bird, which he saw in Banks's collection (1785 : 359), he states that it comes from Christmas Island, a misprint for Christmas Harbour, Kerguelen Land, as Saunders pointed out (1896 : 51).

55. ***Sterna fuscata*** Linn., 1766. Sooty Tern or Wideawake.

Signed painting, with a pen and ink sketch of the head. " W. W. Ellis ad viv : delint : et pinxt : 1778. Turtle Island." (*Al.*) " *Sterna serrata* Forst."

Turtle Island in this case is another name for Christmas Island (see f. 47).
Webber, f. 122 ; Forster, f. 110 ; A.M. 44 ; P.R. 21.

56. ***Gygis alba candida*** (Gm.), 1789. White Tern.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778. Turtle Isle."

This bird was taken at Christmas Island ; a specimen from there was in the Leverian Museum (Latham, 1785 : 363).

Parkinson, f. 33.

*57. ***Sterna striata*** Gm., 1789. White-fronted Tern.

Signed painting, with a pen and ink sketch of the head. " W. W. Ellis ad viv : delint : et pinxt : 1777. At sea between New Zealand and Mo-dieu. At sea between New Zealand and Whatdue." (*Al.*) " Latham. t. 98. *S. striata* Gm."

Whatdue or Mo-dieu are phonetic equivalents for Atiu or Wateeo in the Cook group, visited by Cook at the beginning of April 1777. Gmelin's description was derived from this drawing in Banks's collection, which therefore becomes the type. It was published by Latham (1785 : pl. 98).

58. ***Demigretta sacra*** (Gm.), 1789. Reef Heron, white phase.

Unsigned painting, with pen and ink sketch of the head. " At the Friendly Islands." (D.) " W. Ellis."

There were two of these birds in Banks's collection according to Latham.
Forster, f. 114 ; Webber, f. 118.

59. ***Chionis minor*** (Hartlaub), 1841. Lesser Sheath-bill.

Signed painting, with a pen and ink sketch of the head. " W. Ellis ad vivum delint : et pin . . . 1776. Kerguelens Land. Isle of Desolation."

For notes on this bird see Webber, f. 111.

60. ***Erolia minutilla*** (Vieillot), 1819. Least Sandpiper.

There is a pen and ink sketch of a head on this signed plate which is the lower half of no. 32. " W. Ellis ad vivum delint : et pinxit. 1778." " King Georges Sound."

Sharpe thought that the painting probably represented the Least Sandpiper and we agree with him. The pen and ink sketch of the head however is of another bird, the Semipalmated Sandpiper *Ereunetes pusillus* (Linn.) ; the two species are often confused. We are much indebted to Dr. A. Wetmore for kindly identifying these two drawings.

61. ***Erolia alpina pacifica*** (Coues), 1862. American Dunlin or Red-backed Sandpiper.

Signed painting, with pen and ink sketch of the head. " W. W. Ellis ad viv. delint: et pinxt: 1778. King George's Sound."

62. ***Aphriza virgata*** (Gm.), 1789. Surf Bird.

Signed painting, with pen and ink sketch of the head. " W. W. Ellis ad viv: delint: et pinxt: 1778. King Georges Sound." (*Al.*) " *Tringa Borealis.*"

Although Sharpe correctly identified the Surf Bird of f. 66 he mistook this one for the Wandering Tattler, *Heteroscelus incanus* (Gm.), 1789. The painting is, however, a fair representation of *A. virgata* in winter plumage, and the detailed sketch of the beak shows clearly that it could not have been intended for that of *H. incanus*. Stresemann (1949 : 249) has followed Sharpe's identification. Latham called this the Boreal Sandpiper, and says " size uncertain " (1785 : 181) ; it would seem, therefore, that he cannot have examined a specimen, and that his description was based on this painting with which it agrees except for his statement that the legs are deep brown ; in the painting they are a greenish-grey. He seems to have examined specimens in summer plumage but believed them to be another species which he called the Streaked Sandpiper (see f. 66).

Webber, f. 113.

63. ***Lobipes lobatus*** (Linn.), 1758. Red-necked or Northern Phalarope.

Signed painting. " W. Ellis ad vivum delint: et pinxt: 1778. Between Asia and America."

Pennant (1785 : 494–495) describes the Red-necked and Grey Phalaropes as the male and female of what he calls the " *Red Phalarope* ", " found by the navigators between Asia and America ", but he was aware that Linnaeus regarded them as two species. His account of the Grey Phalarope *Phalaropus fulicarius* Linn., 1758, seems to refer to an immature bird or one in winter plumage.

Latham (1785 : 272) states that his plate (the frontispiece of that volume) represents a bird in Banks's collection, which he describes as Var. A of the Red Phalarope, from Lat. 66–69° N. between Asia and America ; the bird he depicts is similar to the one painted by Ellis, except that it is standing on land instead of swimming.

Stresemann (1949 : 252) suggests that Ellis's painting represents *Phalaropus fulicarius* but the chestnut patch on the sides of the neck and the white underparts show that this cannot be so.

64. ***Aechmorhynchus cancellatus*** (Gm.), 1789. Christmas Island Sandpiper.

Signed painting. " W. W. Ellis ad viv: delint: et pinxt: 1778. Christmas Isle."

Latham apparently saw a specimen of this sandpiper in Banks's collection since he states that it was 7½ inches long (1785 : 274), a measurement which agrees neither with Ellis's drawing nor with Anderson's MS. description. For long this species was regarded as extinct as it was known only from Ellis's drawing, but it was rediscovered in the Tuamotu Archipelago by Peale (1848 : 235) in 1839. Townsend & Wetmore (1919 : 182) discussed four specimens from the Tuamotu group in which the throat and abdomen were unmarked; they considered that these belonged to the species Peale had named *Tringa* [= *Aechmorhynchus*] *parvirostris*. In Ellis's bird there is some barring of the underparts and it occurs also in all the five skins, collected by Beck, in the British Museum although it varies in extent. Lowe (1927) thought that there was insufficient ground for separating the species and that therefore *parvirostris* should be regarded as a synonym of *cancellatus*.

Sharpe identified the painting as the Wood Sandpiper, *Tringa glareola* Linn., 1758.

65. ***Prosobonia leucoptera*** (Gm.), 1789. Latham's White-winged Sandpiper.

Unsigned painting. " *Tringa pyrrhetraea* Forster. Te-Te. Eimeo or York Isle." (D.) " W. Ellis." (*Al.*) " *Prosobonia ellisi* Sharpe." The last remark is in the handwriting of either Sharpe or Chubb.

Latham (1785 : 172, pl. 82) remarks " This bird varies. In one specimen which came under my view the crown of the head was dusky, the line over the eye ferruginous, and a tinge of the same was visible throughout the whole of the plumage ". Latham's plate differs from Ellis's in having only one white patch on the wing; Webber shows two, and so does Forster though they are wider apart in his painting than in Ellis's or Webbers'; Forster's bird came from Tahiti, nine miles distant from Eimeo, and it had a white spot above the eye which is not visible in the other paintings. J. R. Forster noted asymmetry of marking in the specimen he described (1844 : 174). The only remaining skin is now in the Leiden Museum.

A later plate is that by Lodge in Rothschild's *Extinct Birds*. It is a charming picture but not a good representation of the bird portrayed by Cook's artists.

Forster, f. 120; Webber, f. 116.

66. ***Aphriza virgata*** (Gm.), 1789. Surf Bird.

Unsigned painting of a bird in summer plumage. " Sandwich Sound." (D.) " W. Ellis." (*Al.*) " *Tringa virgata*."

Latham called this the Streaked Sandpiper and noted that it was the size of the Common Snipe (1785 : 180). See notes on f. 62 which represents a bird of this species in winter plumage.

Webber, pl. 113.

67. ***Charadrius rubricollis*** Gm., 1789. Hooded Dotterel of Tasmania.

Signed painting. " W. Ellis ad vivum delint : et pinxit : 1777. Adventure Bay."

Ellis's bird has a large white spot on either side of the neck, which appears to correspond with the " large chestnut spot, the size of a silver penny, almost meeting together at the back part " which Latham describes on the neck of his Red-necked Plover (1785 : 212), the basis of Gmelin's *C. rubricollis*. Mathews (1913 : 131) suggests that Latham confused his notes on this bird with those on the Red-necked Phalarope. Gmelin's description was not recognized for many years and Vieillot's name of *C. cucullatus*, 1818 was accepted for the Hooded Dotterel; Peters (1934) has, however, reverted to Gmelin's name and, it is therefore used here. Latham probably used this drawing since he gives the colours of the soft parts, but he may have had a specimen also.

68. ***Pluvialis dominica fulva*** (Gm.), 1789. Asiatic Golden Plover.

Signed painting, with pen and ink sketch of the head. " W. W. Ellis ad viv : delint : et pinxt : 1778. Christmas Isle."

Forster, ff. 123, 124.

69. ***Gallinula chloropus sandvicensis*** Streets, 1877. Hawaiian Gallinule or Alae.

Unsigned painting. " Sandwich Isles." (D.) " W. Ellis."

The bright red frontal shield in this bird was associated in Hawaiian legend with the discovery of fire (Wilson & Evans 1890–99 : 163).

70. ***Pennula sandwichensis*** (Gm.), 1789. Sandwich Rail.

Signed plate. " W. W. Ellis ad viv : delint : et pinxt : 1779. Sandwich Isles."

Gmelin based his name on Latham's description of the Sandwich Rail (1785 : 236) in Banks's collection. There are apparently only two specimens of this bird in existence, one in Leiden and another in Vienna ([Stresemann] 1957). The synonymy has been fully discussed by Rothschild (1900 : 239–244); he suggests that Latham's Dusky Rail, if it really came from Hawaii, is synonymous with the Sandwich Rail. Ellis's plate was reproduced by Wilson & Evans (1890–99 : 175).

71 ***? Gallicolumba erythroptera*** (Gm.), 1789. Latham's Garnet-winged Pigeon.

Signed painting, with a pen and ink sketch of the head. " W. W. Ellis ad viv. delint : et pinxt. 1777. York Isle or Eimeo, Oo-oo-widou." (*Al.*) " *Columba pectoralis*."

Latham had at least three birds on which to base his description of this pigeon and its varieties (1783 : 624–625). The curious thing about Ellis's bird is that the whole of the undersurface is white and it is now impossible to decide whether he actually made a mistake (possibly through finishing the painting from memory), or whether there was indeed at that time a variety of this ground dove with a white breast and abdomen. Sharpe (1906) suggests that Latham's type from the Leverian Museum was probably the actual type figured by Ellis but this seems scarcely likely as Latham says " the back between the wings, the quills, tail, lower part of the breast, belly, and vent are all black ". Notes on the rarity of the species are given under Forster's f. 136.

Parkinson, f. 35 ; M.E. 30.

72. ***?Ducula pacifica pacifica*** (Gm.), 1789. Pacific Pigeon.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778. Friendly Isles." (*Al.*) " *C. pacifica* Gm."

Typical members of this species have ferruginous under-tail coverts, and the undersurface of the breast and abdomen is washed with light brown or a vinaceous colour.

These hues are clearly shown in Forster's painting, f. 139, and Latham (3 :187 629) described the bird as the " Ferruginous-vented Pigeon " but Ellis drew it in such a way that the under-tail coverts do not show at all, and painted the breast and abdomen pale grey with no tinge of brown.

The genus *Ducula* was partly revised by Amadon (1943), and there are some interesting comments on variation in this genus by Mayr (1931) who points out that even in identical localities individuals differ much more than is generally realized. A.M. 11.

73. ***Creadion carunculatus*** (Gm.), 1789. New Zealand Saddleback or Tieke.

Signed painting with pen and ink sketch of the head. " W. W. Ellis ad vivum delt : et pinxt : 1777 ; New Zealand." (*Al.*) " *Sturnus carunculatus* Forster."

Forster, pl. 144 ; M.E. 7 ; A.M. 19.

74. (1) ***Ixoreus naevius*** (Gm.), 1789. Varied Thrush (upper figure).

Signed painting. " W. Ellis ad vivum delint : & pinxt : 1778. King Georges Sound." (*Al.*) " *T. naevius.*"

This thrush was figured by Pennant (1785 : pl. 15), but his plate was not copied from Ellis's.

(2) ***Turdus migratorius*** Linn., 1766. American Robin (lower figure).

(*Al.*) " *Turdus migratorius.*"

Latham thought that this bird was the female of *I. naevius* (1783 : 27) although he had already described both sexes of *T. migratorius* from the eastern coast of North America (loc. cit. : 26).

75. ***Luscinia calliope camtschatkensis*** (Gm.), 1789. Greater Kamchatka Nightingale or Siberian Ruby-throated Robin.

Signed painting. " W. Ellis ad viv : delint : et pinxt : 1779. Kamtschatka."

Latham named the Kamtschatka Thrush from a specimen in the Leverian Museum (1783 : 28) and two years later this account was quoted by Pennant in the *Arctic Zoology* (**2** : 343).

76. ***Conopoderas caffra caffra*** (Sparrm.), 1786. Tahitian Reed-warbler.

Signed painting, with pencil sketch of the head. " Otaheite." Ellis also wrote " Eimeo " on the front of the painting ; this was crossed out but on the back, in his hand, is " Eimeo or York Island." (D.) " W. Ellis." (*Al.*) " *Turdus longirostris.*"

Ellis's bird is dull in colour and appears to be the form still to be found at Tahiti. Murphy & Mathews (1928, 1929) discuss a brown phase in this species which they think may not be a matter of age ; it is possible that Ellis's bird was assuming the colour of this brown phase. For further notes see Forster, f. 55 ; M.E. 8 ; A.M. 28 ; and Webber, f. 139.

77. ***Phaeornis obscura*** (Gm.), 1789. Hawaiian Thrush.

Signed painting with pen and ink sketch of the head. " W. W. Ellis ad viv : delint : et pinxt : 1779. Sandwich Isles." (*Al.*) " *Turdus sandwichcensis*."

Gmelin based his name on Latham's account of a specimen in the Leverian Museum. Wilson & Evans (1890–99) say that the commonest native name for it is the Omau and that its sweet song " fairly entitles it to be called the Hawaiian Nightingale ".

78. ***Coracina novaehollandiae*** (Gm.), 1789. The Black-faced Cuckoo-shrike.

Signed painting with pen and ink sketch of the head. " W. W. Ellis ad viv : delt : et pinxt : 1777. Adventure Bay, Van diemens Land."

Latham thought that this bird was a thrush and was followed by Gmelin whose description was for many years not recognized as applying to a cuckoo-shrike. The synonymy has been fully discussed, with reference to this painting, by Mathews (1921 : 113).

79. ***Psittirostra psittacea*** (Gm.), 1789. Ou.

Signed painting with pen and ink sketch of the head. " W. W. Ellis ad viv : delt : et pinxt : 1779. Sandwich Isles."

Latham's name for the Ou was the Parrot-billed Grosbeak (1783 : 108, pl. 42) ; he refers to a male and a female in the Leverian Museum.

80. ***Calcarius lapponicus alascensis*** Ridgway, 1898. Alaska Longspur.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778. Unalaschka."

The nominate species of this bunting was described by Linnaeus in 1758 but the Alaskan form was not separated until Ridgway described it in 1898.

81. ***Zonotrichia atricapilla*** (Gm.) 1789 (= *Z. coronata* (Pallas), 1811). Golden-crowned Sparrow.

Signed painting. " W. Ellis ad vivum delint : & pinxt : 1778. Sandwich Sound."

The sexes are alike in this species. Stresemann suggests (1953 : 371) that the reference to the supposed female in Cook & King (1784, **2** : 378) applies to a Fox Sparrow, *Passerella iliaca unalaschkensis* (Gm., 1789), and that the type locality of that bird is therefore erroneous. There seems no reason however why the latter species should not have been collected both at Unalaska and at Prince William (i.e. Sandwich) Sound since according to Swarth (1920 : 127, 129) an adult male was collected at " Ounalaska " in 1894. Latham (1783 : 202) had long since stated that a specimen was collected at Aoonalaska. The " female " referred to by Stresemann is described in Cook & King in their account of animals collected at Prince William's Sound not Nootka Sound.

82. ***Passerculus sandwichensis sandwichensis*** (Gm.), 1789. Aleutian Savannah Sparrow.

Signed painting with nest and eggs. "W. Ellis ad vivum delint : & pinxt : 1778. Sandwich Sound of Unalaschka."

Sharpe (1906) thought that this was the female of *Zonotrichia coronata* Pall., but Stresemann has already pointed out (1949 : 250) that it represents the above species. Ellis's plate agrees with the skins in the British Museum save that in these the tail feathers are dark with pale edges while in Ellis's bird they are pale with dark edges. There was a specimen in Banks's collection.

83. ***Leucosticte brunneonucha*** (Brandt), 1842. Japanese Snow-finch.

Signed painting. " W. W. Ellis ad viv: delint: et pinxt: 1779. Off the Coast of Japan."

Webber, f. 109.

84. ***Fringilla montifringilla*** Linn., 1758. Female Brambling.

Signed painting with a partly coloured sketch of an outstretched wing. " W. W. Ellis ad viv: delint: et pinxt: 1779. Off the Coast of Japan."

85. ***Loxops coccinea coccinea*** (Gm.), 1789. Scarlet Akakane.

A finished and signed painting of one bird on a branch and a delicate pen and ink sketch of another on the ground. " W. W. Ellis ad viv: delint: 1779. Sandwich Isles."

Gmelin's description of this bird was based on Latham's account of a bird in the Leverian Museum. Wilson & Evans (1890–99) reported that the Scarlet Akakane was very scarce when they were in Hawaii, and Bryan & Greenway (1944) say that it has not been recorded since 1893.

86. ***Petroica macrocephala*** (Gm., 1789). Yellow-breasted Tit or Ngiru-ngiru.

Signed painting. " W. W. Ellis ad vivum delt: et pinxt: 1777. New Zealand." (*Al.*) " *cf. Turdus minutus* Forster."

Sharpe thought that this identification was wrong (1906 : 207) and suggested that Ellis's drawing was more like *P. toi-toi* (Garn.). The latter is, however, a bird found only in the North Island of New Zealand where there was no collecting on the third voyage. Ellis's bird is badly drawn and the colour on the breast seems to have darkened with age but the pattern on the tail feathers is diagnostic. Forster's representation (f. 149) of this bird is more accurate. Latham's plate of the species was taken from a bird in Banks's collection (1783 : pl. 55).

87. ***Chasiempis sandwichensis*** (Gm.), 1789. Hawaiian Flycatcher or Elepaio; a young bird.

Signed painting, with a pen and ink sketch of the head. " W. W. Ellis ad viv: delint: et pinxt: 1779. Sandwich Isles."

Apparently two of these birds were brought back to England, an immature one in Banks's collection, which Latham called the Sandwich Flycatcher, and an adult bird in the Leverian Museum, which Latham called the Spotted-winged Flycatcher and Gmelin described as *Muscicapa maculata*. Rothschild places the latter in the synonymy of *C. sandwichensis* (1893–1900, **2** : 71) though Wilson & Evans give some grounds for uncertainty about this (1893–99 : 126); there is doubt about the exact locality where the bird was collected.

88. ***Wilsonia pusilla pileolata*** (Pall.), 1811. Northern Pileolated Warbler.

Signed painting. " W. W. Ellis ad viv : delint : & pinxt : 1778. Between Asia and America."

It seems probable that this is *pileolata* ; Sharpe was reluctant to admit the validity of the various races into which the species has been divided (1906 : 207) but Hellmayr accepts them (1935 : 452–454).

89. ***Luscinia svecica*** Linn., 1758. Bluethroat.

" On the ice." (D.) " W. Ellis."

This is an excellent painting of a female Bluethroat.

90. ***Oenanthe oenanthe*** Linn., 1758. European Wheatear.

Signed painting. " W. Ellis ad viv : delint : 1778. On the Ice." (*Al.*) " Oenanthe ? "

Parkinson, f. 38 ; Solander MS. Z4 : 123.

91. ***Motacilla flava*** Linn., 1758. A Yellow Wagtail.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778. Lat : 66° : 00′ N. Caught on Board."

This is a young bird and its race is uncertain.

92. ***Conopoderas aequinoctialis*** (Lath.), 1790. Christmas Island Reed Warbler.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778. Christmas Isle."

This bird was also figured by Webber, f. 107, whose painting differed from Ellis's in showing the bars on the tail ; these were mentioned by Anderson and referred to by Latham (1787 : 187) who based his account on Anderson's MS. notes.

Murphy & Mathews discuss the species (1929) and point out that there is some colour variation, apparently determined by wear. There are no adult skins of this bird in the British Museum. Mrs. Cooper, who was living on Christmas Island in 1953–54, tells me that the birds were still to be heard there then, though they were shy and seldom seen.

93. ***Parus ater insularis*** Hellmayr, 1902. Coal Tit (upper figure).

Parus major minor Temm. and Schl., 1848. Great Tit (lower figure).

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1779. Coast of Japan." (*Al.*) " *ater, major.*"

94. ***Parus cinctus alascensis*** (Prazak), 1895. Alaska Chickadee.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1778. Norton Sound."

Hellmayr points out (1934 : 77) that Norton Sound is a typical locality. Stresemann (1949 : 252) considers that this chickadee should be known as *Parus lathami* Stephens, since Stephens based his description (1817 : 44–45) on the accounts by Latham and Pennant of a titmouse in the Leverian Museum which agrees with Ellis's plate and which Pennant says (1785 : 424) was found " as high as lat. 64° 30′

on the western side of North America". Stephens incorrectly stated that the forehead was white.

95. ***Malurus cyaneus cyaneus*** (Ellis), 1783. Superb Blue Wren.

Signed painting. " W. W. Ellis ad viv : delint : et pinxt : 1777. Adventure Bay."

Ellis very briefly described this Tasmanian wren (1783 : 22).

96. ***Collocalia spodiopygia townsendi*** Oberholser, 1906.

Signed painting with pencil sketch of the head. " Friendly Isles." (D.) " W. Ellis."

Stresemann (1950 : 74, 87) has pointed out that Gmelin's name of *Hirundo unalaschkensis* (1789 : 1025), based on Latham's erroneous locality, is valid for this Tongan species but that it would cause confusion to revert to it.

10. BIRDS PAINTED BY JOHN WEBBER ON COOK'S THIRD VOYAGE

Paintings by John Webber (38) *Contained in a Volume of His Unpublished Paintings in Brit. Mus.* (*Print Room*) *ff.* 105–143.

The paintings of birds and fishes made by Webber on this voyage may have been part of a larger series that was broken up for some reason. Only three of these paintings have been lifted from their mounts and there may be additional remarks on the backs of the others.

105. ***Parus cinctus alascensis*** (Prazak), 1895. Alaska Chickadee.

" Jo/n Webber, 1778. Taken on the continent of the West Coast of America. Lat. 64°.30. Long. 198°.30. Sept. 1778."

Stresemann's suggestion that the name of this bird should be changed (Ellis, f. 94) has been adopted in the American Check-list of 1957, which was published after this paper went to press.

106. ***Malurus cyaneus cyaneus*** (Ellis), 1782. Superb Blue Wren.

" J. Webber, 1777. New Holland. Adventure Bay. Van Diemen's Land."

Cook called at Adventure Bay, Tasmania, in January 1777, but did not visit the mainland of Australia on this voyage.

Ellis, f. 95.

107. ***Conopoderas aequinoctialis*** (Lath.), 1790. Christmas Island Reed Warbler.

" Jo^n Webber f. 1777 Dec. 31.* Christmas or Turtle Isle."

Ellis, f. 92 ; Anderson's MS. notebook, p. 12.

108. ***Loxops coccinea coccinea*** (Gm.), 1789. Scarlet Akakane.

" Sandwich Isle." (D.) " J. Webber, Sandwich Isle."

Ellis, f. 85.

109. ***Leucosticte brunneonucha*** (Brandt), 1842. Japanese Snowfinch.

" J. Webber, del. 1778, Japan. Taken of the Island of Japan in lat. 40° N, 142° E." (D.) " *Fringilla Linaria*."

Ellis, f. 83.

110. ***Bombycilla garrulus pallidiceps*** Reichenow, 1908. Bohemian Waxwing.

" J. Webber del., 1778. Taken on the continent of the West coast of America in Lat. 64–30 Long$^{\text{de}}$. 198.30. Sep$^{\text{r}}$. 1778.

111. ***Chionis minor*** Hartlaub, 1841. Lesser Sheath-bill.

" John Webber, f. 1777. The Island of Desolation."

The date should be 1776 as Cook left Kerguelen on 30th December of that year but Webber probably completed his drawing later. Although both species of Sheath-bill were taken on Cook's voyages they were confused in Latham's description and it was not until 1841 that the bird painted by both Ellis (f. 59) and Webber received its scientific name.

112. ***Erolia acuminata*** (Horsfield), 1821. Siberian Pectoral Sandpiper or Sharp-tailed Sandpiper.

" Jn°. Webber del. 1778." Taken between – – – [Lat.] 69½ Long. 191–2."

113. ***Aphriza virgata*** (Gm.), 1789. Surf Bird.

" Jo/n Webber, del. 1778."

Ellis, ff. 62, 66.

114. ***Phalaropus fulicarius*** (Linn.), 1758. Grey or Red Phalarope.

There is a sketch of the beak and foot in the top left-hand corner. " Jo/n Webber del. 1778. Taken between Asia and America in Latitude 69½ Long. 191½ East. Sept. [?] 1778."

115. ***Pluvialis dominica dominica*** (P. L. S. Müller), 1776. American Golden Plover.

" John Webber delin. 1777. Sandwich Isles."

116. ***Prosobonia leucoptera*** (Gm.), 1789. White-winged Sandpiper.

" Te-te. Eimeo or York Island." (D.) " J. Webber. *Tringa pyrrhetraea* Forster."

This species is extinct and the only known specimen is in the Leiden Museum. Forster, f. 120, Ellis, f. 65.

117. ***Heteroscelus incanus*** (Gm.), 1789. Wandering Tattler.

" John Webber, 1777. Palmerston Island."

Latham called this bird an " Ash-coloured Snipe " ; it was in Banks's collection.

118. ***Demigretta sacra*** (Gm.), 1789. Reef Heron, blue form.

" Society Isles." (D.) " J. Webber."

Forster, f. 114 ; Ellis, f. 58.

119. ***? Sterna*** sp. A tern.

" John Webber delin., 1777. Christmas Isle."

This painting agrees very closely with a skin of *Sterna striata* Gm., 1789, in the British Museum, a specimen of which was taken between New Zealand and the Cook Islands and painted by Ellis, pl. 57, 1777. Hindwood (1946), however, who has gone very thoroughly into the question has been unable to find any reliable record of the species outside the Neozelanic region and considers that reported occurrences elsewhere are based on immature specimens of the Crested Tern *Thalasseus bergii cristatus* (Stephens), 1826.

120. ***Procelsterna cerulea*** (Bennett), 1840. Blue-grey Noddy.

" J. Webber del. 1778. Christmas Isle. Turtle Isle."

Stresemann (1950 : 78) considers that Latham's Southern Tern is in fact the Blue-grey Noddy, and that Bennett's name is therefore a synonym of *Procelsterna australis* (Gm.), 1789, which was represented in the Leverian Museum.

121. ***Thalasseus bergii cristatus*** (Stephens), 1826. Crested Tern.

" J. Webber del. 1777. Friendly Isles."

Latham saw a specimen in the British Museum.

122. ***Stern fuscata ?*** subsp. Sooty Tern or Wideawake.

" John Webber del. Jan. 3, 1778. Christmas Isle, Turtle Island." (*Al.*) " *Sterna serrata* Forster."

Ellis also painted this bird (f. 55), but gave Turtle Isle as the locality. Cook called at two islands with this name, one in the Tonga group in 1774, and another (known generally as Christmas Island) in the Line Islands on this voyage. This is confirmed by the MS. map which is bound in with Anderson's bird paintings.

123. ***Eudyptes chrysolophus*** (Brandt), 1837. Macaroni Penguin.

" Jo/n Webber, ex Jan. 1777. Island of Desolation." (*Al.*) " *Aptenodytes chrysocoma* Forster."

Painted after leaving Kerguelen.

124. ***Aptenodytes patagonicus*** Miller, 1778. King Penguin.

" Island of Desolation." (D.) " J. Webber. *Aptenodytes pataghonica* Forster."

No date or locality are given.

Ellis, f. 46 ; Forster, f. 81.

125. ***Melanitta perspicillata*** (Linn.), 1758. Surf Scoter.

" J. W., f. 1778. Coast of America." (D.) " J. Webber." (*Al.*) " Anas perspicillata L."

126. ***Histrionicus histrionicus pacificus*** W. S. Brooks, 1915. Pacific Harlequin Duck.

" John Webber del. 1778. That part of the body which is covered by the Wings is of a brownish colour resembling that over the eyes but rather darker. Duck of Analaska. Samganouda Harbour. Isle of Aonashka." (D.) " J. Webber." (*Al.*) " Anas histrionica. Kamtschatka . . . ".

Ellis, f. 34.

127. ***Meliornis novae-hollandiae canescens*** (Lath), 1790. Yellow-winged Honey-eater.
" Adventure Bay, New Holland." (D.) " J. Webber."

Canescens is the Tasmanian race of this bird, and the skins in the British Museum agree with this painting. Latham's account was based on Anderson's notes.

128. ***Chlorodrepanis virens*** (Gm.), 1788. Lathams' Olive-green Creeper, Amakihi.
" Sandwich Isle^{d}." (D.) " J. Webber." (*Al.*) " Lath. 740, n.44."

A specimen was in the Leverian Museum.
Ellis, f. 31.

129. ***Drepanis pacifica*** (Gm.), 1788. Yellow-rumped Mamo.
" Sandwich Isle^{d}." (D.) " Webber." (*Al.*) " Lath. p. 703, no. 3."

The species apparently became extinct about the end of last century. A specimen was in the Leverian Museum.
Ellis, f. 27.

130. ***Hemignathus obscurus*** (Gm.), 1788. Hook-billed Green Creeper, Akialoa.
" J/n°. Webber, del. 1779, A kie-a-roa, Sandwich Isles, Owhy-hee." (*Al.*) " Lath., 703, n.4."

This species, too, was in the Leverian Museum.
Ellis, f. 28.

131. ***Moho nobilis*** (Merrem), 1786. Yellow-tufted Bee-eater, Double-plumed Moho.
" Hoo-hoo the name given by the natives, Sandwich Isles." (D.) " J. Webber."

King George of England, who was also Elector of Hanover, sent one of these birds with other curiosities to the Göttingen Museum and it was there that Merrem described it. It now appears to be extinct (Bryan & Greenway, 1944). A specimen was in the Leverian Museum.
Ellis, f. 26.

132. ***Himatione sanguinea*** (Gm.), 1788. Crimson Creeper, Akakane.
" J. Webber del. 1779. Sandwich Isles, A ka-kan-ne." (D.) " Lath. p. 739 no. 43."

This bird and its sweet song were popular in Hawaiian legend. Latham saw one in the Leverian Museum.
Ellis, f. 30.

133. ***Vestiaria coccinea*** (G. Forster), 1780. Red Sickle-bill, Iiwi.
" Jo/n Webber del, 1779. Sandwich Isles, He-$\bar{\bar{e}}\bar{e}$-v$\bar{\bar{e}}\bar{e}$." (D.) " Lath. 704, no. 5."

This was in the Leverian Museum.
Ellis, f. 29.

134. ***Alcedo cristata cristata*** Pallas, 1764. Malachite-crested Kingfisher, Cape of Good Hope.
" Kingfisher of the Cape. Cape of Good Hope." (D.) " J. Webber."

135. ***Halcyon venerata venerata*** (Gm.), 1788. Latham's Venerated Kingfisher.

" Jo/n Webber ins. f. 1777. Society Isles."

Ellis, f. 23 ; Forster, f. 58.

136. ***Colaptes cafer*** (Gm.), 1788. North-western Flicker.

" King Georges Sound." (D.) " J. Webber, *Picus auratus*." (*Al.*) " America."

A skin from Vancouver Island in the British Museum shows the breast suffused with pink just as Webber has painted it. Latham says that two specimens were in the Leverian Museum (1782 : 599).

Ellis, f. 19.

137. ***Sphyrapicus varius ruber*** (Gm.), 1788. Reb-breasted Sapsucker.

" Jn. Webber del., 1778. King Georges Sound." (D.) " Lath. p. 561, n. 8. *Picus erythrocephalus* L."

This plate is of particular interest as it shows clearly that a whole specimen was taken on this voyage and is additional evidence for Swarth's conclusion on the type locality (1912 : 35–38). Latham did not see this drawing since he describes a specimen from Cayenne (*sic*!) with legs and tail missing (1782 : 563). He described the tail in 1787 (p. 106) and referred the bird tentatively to one described by Cook from Nootka Sound, which is confirmed by the note on this plate—King George's Sound being another name for Nootka Sound.

See also Stresemann 1949 : 249.

138. ***Picoides tridactylus fasciatus*** Baird, 1870. Alaskan Three-toed Woodpecker ; male.

" Jo/n Webber, 1778. Taken on the continent of the west coast of America. Lat. 64.30 Long. 193.3. Sep^{r}. 1778. Norton Sound."

Ellis, f. 20.

139. ***Conopoderas caffra longirostris*** (Gm.), 1789. Long-billed Warbler.

" Morea, Otahaitie Eimeo or York Island." (D.) " W. Webber."

Latham refers to specimens from Eimeo or York Island (other names for Morea) which he saw in the Leverian Museum and in Banks's collection (1783 : 67).

Ellis, f. 76 ; Forster, pl. 55 ; M.E. 8 ; A.M. 28.

140. ***Vini peruviana*** (P. L. S. Müller), 1776. Otaheitan Blue Parrakeet.

" John Webber delin 1777. Parroquet of Tahaite." (D.) " Latham p.255, no.59. *Psittacus saphharinus* Forster." (*Al.*) " Loriquet of Otaheite."

Parkinson, f. 9 ; Ellis, f. 14 ; Forster, f. 49 ; M.E. 12.

141. ***Buceros rhinoceros*** Linn., 1758. Indian Hornbill, female.

Only the beak and skull are depicted. " Princes Island." (*Al.*) " This bird is black with a white tail Princes Isle Webber."

142. Missing.

143. ***Pardalotus striatus striatus*** (Gm.), 1789. Striated Pardalote.

" J. Webber. f. ins. 1777. New Holland, Adventure Bay."

Banks actually had a specimen, according to Latham (1787 : 188) who does not mention this drawing but refers to Anderson's papers.

II. PAINTINGS BY PHILIP D'AUVERGNE AND J. F. MILLER OF BIRDS COLLECTED ON PHIPPS'S VOYAGE TOWARDS THE NORTH POLE IN 1773

Paintings by D'Auvergne and Miller Contained in Brit. Mus. (*Print Room*) *Vol.* 199* *B* 4, *ff.* 2, 3, 6 *and* 74.

2. ***Carduelis flammea*** (Linn.), 1758. Mealy Redpoll.

Unsigned painting. (B.) " D'Auvergne del. *Fringilla linaria.* Came on board his ship. Capt. Phipps." " Spitzbergen," also in Banks's hand, has been crossed out.

This bird is not mentioned amongst those listed in the appendix to the published account of Phipps's voyage (1774) so we do not know where it was taken.

3. ***Fratercula arctica*** (Linn.), 1758. Puffin.

Unsigned painting of a freshly decapitated head. (B.) " D'Auvergne del. *Alca arctica.* Capt. Phipps Spitzbergen." (*Al.*) " Sea Parrot, of Marten. shot in the N. of Spitzbergen. 1773."

As only the head of bird is shown and we do not know whether the drawing is life size, we cannot tell whether or not it represents the larger race found in that region.

6. ***Plectrophenax nivalis*** (Linn.), 1758. Snowbunting.

Unsigned painting of the adult male. (B.) " *Emberiza nivalis.* Capt. Phipps Spitzbergen 1773." (D.) " D'Auvergne."

In the appendix to the *Voyage* (pp. 188–189), Phipps notes that large flocks of these birds occur on the ice at Spitzbergen as well as on land, and he wonders what constitutes their food.

74. ***Pagophila eburnea*** (Phipps), 1774. Ivory Gull.

Signed painting. " John Frederick Miller. pinxt. 1773." (B.) " *Larus eburneus* Capt. Phipps Spitzbergen 1773."

Phipps gave a detailed description of this bird (*loc. cit.* : 187). Latham mentions a specimen in the Leverian Museum (1785 : 377) which was probably the bird painted by Miller whose plate was reproduced in his *Various Subjects of Natural History*, pl. 12, 1776. The reproduction is a looking-glass copy and in neither this work nor in the later edition, the *Cimelia Physica* of 1796, is the colouring very accurate. The detail in the background has been reduced and altogether the published plates are poor in quality compared with the original painting.

12. BIRD PAINTINGS BY COLONEL GORDON ACQUIRED BY FRANCIS MASSON AT THE CAPE OF GOOD HOPE, 1772–76

Paintings by Colonel Gorden (17) *Contained in Brit. Mus.* (*Print Room*) *Vol.* 199* *B* 4, *ff.* 35–57.

35 ***Fulica cristata*** Gm., 1789. Red-knobbed Coot.

Unsigned painting. (B.) " Mr. Mason Cape of good hope 1773." (*Al.*) " *Fulica.*"

36 ***Francolinus capensis*** (Gm.), 1789. Cape Pheasant or Francolin.

Unsigned painting. (B.) " Sent from the Cape of Good Hope to Sir John Pringle by Mr. Mason who gave it to me." (*Al.*) " called here Pheasant ; inhabits coppices by the Sides of Rivers, and in marshes amongst the Reeds, digs up and eats the small bulbs of Ixia's Gladiolus's about the Size of a Poulet. Magnitudine *Gallina.*"

37. ***Pterocles namaqua*** (Gm.), 1789. Namaqua Sand Grouse.

Unsigned painting. (B.) " *Tetrao fontana* mas The tail had been rubb'd off in a cage."

For notes on this species see f. 41.

38. ***Pterocles namaqua*** (Gm.), 1789. Namaqua Sand Grouse.

Unsigned painting. (B.) " *Tetrao fontana* foemina." (*Al.*) " a little too large."

See f. 41.

39. ***Francolinus afer*** Stephens, 1819. Grey-wing or Cape Partridge.

Unsigned painting. (B.) " *Tetrao.* Sent from the Cape of Good Hope to Sir John Pringle by Mr. Mason who gave it to me with a dried specimen. Common Cape Partridge." (*Al.*) " Magnitudine *T. perdix.*"

Banks's specimen was described by Latham (1783 : 773) whose account was used by Stephens.

40. ***Vidua macroura*** (Pallas), 1764. Pin-tailed Whydah.

Unsigned painting. (B.) " Mr. Mason Cape of good hope 1775." (*Al.*) " *Emberiza vidua* L."

*41. ***Pterocles namaqua*** (Gm.), 1789. Namaqua Sand Grouse. (Pl. 36a.)

Unsigned painting. (B.) " *Tetrao fontana* mas." (*Al.*) " Natural magnitude. Sent from the Cape of Good Hope to Sir John Pringle by Mr. Mason who gave it to me, with a dried specimen. Namaqua Partridge being generally found towards the Country of the Namaqua Hottentots, inhabiting the dry thirsty Deserts, are easily shot by watching near a fountain, where Somitimes (*sic*) 300 will come at once to drink/ : Fountains being very rare in those Deserts. If it is a *Tetrao* it is remarkably different from its Congeners ; making long flights like the *Columba* ; Their note is different from the *Tetraones*. Feeds on Seeds of herbs ; the one which I have stuffed, The Crope was full of the Seed of the *Salvia aethiopica* ; eats also Corn."

Latham (1783 : 750) described this bird not from the specimen but from this drawing as his notes show, so that the drawing becomes the type. He writes " Less than a partridge : length nine inches. It is of that size and length in the drawing . . .

These inhabit the country of the Namaqua Hottentots, and in the day-time frequent the thirsty deserts; but are easily shot, by watching near the fountains . . . From the papers of Sir Joseph Banks." His notes are copied from those on the back of this drawing but he misquotes the locality; Gmelin's account is an abbreviated version (1789 : 754), and he perpetuated Latham's slip about the locality. Since it is clear from what we know of Masson's itinerary that he in fact went no further north than the Hantum country, about 350 miles north of the Cape of Good Hope, it is also clear that Namaqualand is not the type locality which should accordingly be changed to the most northerly desert country explored by Masson.

Ff. 37, 38.

42. ***Casmerodius albus melanorhynchus*** (Wagler), 1827. Great White Heron.

Unsigned painting. (B.) " Cape of Good Hope. Mr. Mason. 1775. *Ardea.*"

43. ***Himantopus himantopus*** (Linn.), 1758. South African or Black-winged Stilt.

Unsigned painting. (B.) " *Charadrias.*" (*Al.*) " ½ magnitude. *Himantopus* ? Sent from the Cape of Good Hope to Sir John Pringle by Mr. Mason, who gave it to me. Inhabits Marshes by Lakes, is very rare."

44. ***Rostratula benghalensis*** (Linn.), 1758. Painted Snipe.

Unsigned painting. (B.) " *Scolopax capensis.*" (*Al.*) " Natural magnitude. Sent from the Cape of Good Hope to Sir John Pringle by Mr. Mason who gave it to me with a dried specimen. is but rare; the common Snipe here being the *S. gallinago.*"

45. ***Agapornis cana*** (Gm.), 1788. Grey-headed Lovebird.

Unsigned painting. (B.) " Mr. Mason. Cape of good hope 1775. birds from Madagascar."

Forster, f. 51.

52. ***Scopus umbretta bannermani*** Grant, 1914. Greater Hammerkop.

Unsigned painting. (B.) " Cape of Good Hope *Rallus cristatus.* Umber Brown p. 90 t. 35 Pennant Gen. Av. N. 64."

There is a pencil sketch of the same bird on the back.

53. ***Plegadis*** sp. An unidentified ibis.

Unsigned painting of a bird with an orange beak, grey legs, a fully feathered head streaked with black and white which extends only a short distance down the neck, and with dark blackish-blue plumage. Banks called it " *Scolopax leucocephala.*"

54. ***Sagittarius serpentarius*** (Miller), 1779. Secretary Bird.

Unsigned painting, very stylized. (B.) " Cape of Good Hope. *Falco grallarius. Falco sagittarius.*"

Forster, f. 32.

55. ***Dendrocygna viduata*** (Linn.), 1766. White-faced Duck.

Unsigned painting. (B.) " *Anas Leucopus.* Cape of Good Hope." (*Al.*) *Anas viduata.*"

Forster, f. 76.

56. ***Bugeranus carunculatus*** (Gm.), 1789. Wattled Crane.

Unsigned painting. (*Al.*) " Wattled Heron. Latham Syn. 3 p. 82 n. 49 tab. 78 from this drawing."

Forster, f. 115.

57. ***Choriotis kori*** (Burchell), 1822. Kori Bustard.

Unsigned painting. (B.) " *Otis cristata* Cape of Good Hope."

13. SOME MISCELLANEOUS BIRD PAINTINGS BOUND WITH SOME OF THE ABOVE AND EXECUTED AT APPROXIMATELY THE SAME PERIOD

Miscellaneous Bird Paintings (19) *Contained in Brit. Mus.* (*Print Room*) *Vol.* 199* *B* 4 *ff.* 49–130

(*a*) Two unsigned paintings from Mrs. Brant are so similar in style to those sent by Masson that one can scarcely avoid the conclusion that they are by the same hand. The legend beneath them (pls. 49, 58) is in a flowing hand and some of the letters and spellings are characteristically Dutch. There is a legend in a similar style beneath a painting of a jackal, pl. 50. A third painting by J. F. Miller of a bird she sent to Banks is included here for convenience.

49. ***Porphyrio madagascariensis*** (Lath.), 1801. Purple Gallinule.

Unsigned painting. (B.) " Sent from the Cape of Good Hope By Mrs. Brant 1772. *Fulica Porphyrio*." (*Al.*) " Riet Haantje Cape."

Latham makes no reference to this painting in his description.

58. ***Tauraco corythaix*** (Wagler), 1827. Knysna Lourie.

Unsigned painting. (B.) " Sent from the Cape of Good — By Mrs. Brant 1772. *Cuculus persa*." (*Al.*) " Loerie from the Cape."

75. ***Goura cristata cristata*** (Pallas), 1764. Crowned Pigeon.

Painting signed by J. F. Miller. " John Miller pinxt. 1772. *Columba coronata*." (B.) " Taken from a living Bird sent me from the Cape of Good hope by Mrs. Brant 1772."

Miller did not colour the tail in this painting of the Crowned Pigeon which comes from New Guinea, but he published a finished version of it in his *Various Subjects of Natural History* (pl. 16), giving the Cape of Good Hope as the habitat.

(*b*) Three bird paintings acquired by Banks from John Greenwood.

119. ***Jacana spinosa jacana*** (Linn.), 1766. Common Jacana.

Unsigned painting, unfinished.

Dryander ascribed this painting to Greenwood and gave Surinam as the locality. There is a heavy black margin round it which makes it impossible to read the writing on the back ; these three drawings are pasted down.

119 (lower figure). **Capella paraguaiae** (Vieillot), 1816. Paraguayan Snipe.
Unsigned painting. (D.) " Greenwood."

127. **Colinus cristatus** Linn., 1766. Crested Quail.
Unsigned painting of two of these birds.

This may be the painting of the stuffed *Tetrao* ascribed by Dryander to Greenwood ; there is nothing to indicate the locality in his catalogue, nor on the painting.

(*c*) Nos. 61, 62, 63 and 64 are unsigned paintings by Gertrude Metz, a professional painter of considerable ability who was working and exhibiting in London in the latter part of the eighteenth century. These four paintings are copies or different versions of four species collected on Cook's second voyage which were painted by the unknown artist referred to earlier. The birds in question are :

Gallirallus austalis australis (Sparrm.), 1786. South Island Weka of New Zealand.
See also P.R. 17.

Theristicus caudatus melanopis (Gm.), 1789. Black-faced Ibis.
See also P.R. 15.

Prosthemadera novaeseelandiae (Gm.), 1788. Tui or Parson-bird.
See also P.R. 23.

Eunymphicus cornutus (Gm.), 1788. Crested Parakeet.
See also P.R. 20.

(*d*) Some paintings by J. F. Miller.

71. **Crax rubra rubra** Linn., 1758. American Curassow.
A signed painting by J. Miller jun.

72 **Pionites melanocephala** (Linn.), 1758. Black-headed Caique.
Signed painting by John Frederick Miller, 1775, who reproduced it the following year (pl. 4). On the back is written in Banks's hand " The bird was sent alive from the West Indies as a present to Miss Ray in whose collection it was drawn. —nd spec. in Sp. vin."

Miss Ray was beloved by Lord Sandwich for many years ; she was a woman of great charm and gentleness, and able to disarm criticism to a large extent. *Pionites melanocephala* is a South American species ; it does not occur in the West Indies.

73. **Paroaria cucullata** (Lath.), 1790. Red-crested Cardinal.
A painting signed by John Frederick Miller, 1774.

Latham's description of this South American species was based on a plate by Peter Brown as well as on this one but since Brown's is mentioned first this one cannot be regarded as the type.

(*e*) The following paintings are the work of Peter Paillou. They are obviously his work although they are unsigned. They were indexed by Dryander with most of the others in this series.

87. ***Podiceps cristatus*** (Linn.), 1758. Great Crested Grebe.

A version of this painting was reproduced in the folio edition (1766, pl. 67) of Pennant's *British Zoology*, but it does not compare with the original which is much more richly coloured. One is reminded of Pennant's complaint that Paillou's colours were " gaudy " ; he perhaps was responsible for having them altered so sadly.

88. ***Caprimulgus europaeus*** Linn., 1758. European Nightjar.

An engraving from this painting was reproduced in the smaller (1768, pl. 59) as well as in the folio edition of *British Zoology* (pl. 51) ; it is inferior to the original.

90. ***Merops viridis*** Linn., 1766. A race of the Little Green Bee-eater.

Pl. 7 in Pennant's *Genera of Birds* (1781) was engraved from this painting.

96. ***Platalea leucorodia*** (Linn.), 1758. Common Spoonbill.

This has apparently not been published.

97. ***Grus antigone*** (Linn.), 1758. Sarus Crane.

Dryander states that this was painted from a living bird.

(*f*) Plates by an unknown painter.

The artist who executed the last two paintings in this volume has not been identified. One, f. 130, is of the Purple Gallinule *Porphyrio madagascariensis* which is also figured on pl. 49 (one of Mrs. Brant's birds) ; the other, f. 129, represents *Vidua macroura*, the Pin-tailed Whydah, also figured on f. 40 (one of Masson's birds). The MS. note on the Whydah is " a Bird of Passage Dolsa, when the fruits of the Capparis are in season."

The note on the Gallinule states : " Bird of Passage—generally comes here at this time of the year when the wheat is in Season. We call it *Chroata colum*—. Tabernetty, 20 Dec. 1787."

REFERENCES

ALEXANDER, W. B. 1928. *Birds of the Ocean.* New York and London.

—— 1954. ——— 2nd. ed. New York.

ALLEN, E. G. 1951. The History of American Ornithology before Audubon. *Trans. Amer. Phil. Soc.* N.S. **41** : 398–591.

AMADON, D. 1942. Birds collected during the Whitney South Sea Expedition. 49. Notes on some non-passerine genera. 1. *Amer. Mus. Novit.* **1175** : 1–11.

—— 1942*a*. Birds collected during the Whitney South Sea Expedition. 50. Notes on some non-passerine genera. 2. Notes on Polynesian Lories. *Ibid.* **1176** : 1–21.

—— 1943. Birds collected during the Whitney South Sea Expedition. 52. Notes on some non-passerine genera. 3. *Ibid.* **1237** : 1–22.

Anderson, William [n.d.] *Characteres breves Avium (in itinere nostro circum orbe visa) adhuc incognitarum anni* 1772–1775. MS. British Museum (Natural History). 13 pp.

—— *Zoologia nova seu characteres & historia Animalium hactenus incognitorum qui in itinere nostro videbantur* 1776 *in linguis Latinis & Anglicis traditus.* The appendix is dated 1777. MS. British Museum (Natural History). 38 pp.

—— (1776–78). *A Journal of a Voyage made in his Majesty's Sloop "Resolution."* May 16th 1776. MS. Public Record Office, London.

Anon. (1772–75). [Unpublished Drawings of Birds from Cook's Second Voyage round the World, 1772–1775, ff. 7–23 in *Natural History Drawings by various Artists in the Collection of Sir Joseph Banks.* q.v.] British Museum, Print Room.

—— (1772–75). *Thirty-eight coloured Drawings of Birds of the Southern Hemisphere, executed from the Life, in the Course of Captain Cook's Second Voyage.* M.E.5–42. Royal Scottish Museum.

—— (1772–75). [*Unpublished Drawings of Birds from Cook's Second Voyage round the World,* 1772–1775 ; ff. 1–53]. Mitchell Library Sydney.

Austin, O. L., Jr. 1932. The Birds of Newfoundland Labrador. *Mem. Nuttall Ornith. Club,* **7** : 1–229.

Azara, F. de. 1802–05. *Apuntamientos para la historia natural de los Páxaros del Paraguay y Rio de la plata.* 3 vols. Madrid.

Baker, J. G. 1885. A monograph of the genus *Gethyllis.* *J. Bot.* **23** : 227.

Banks, Joseph. 1766. *Journal of a Voyage to Newfoundland and Labrador : commencing April ye 7th and ending November the 17th* 1766. MS. in South Australian Branch of Royal Geographical Society, Adelaide. (Microfilm in British Museum, Natural History).

—— 1766. M.S. *Catalogue of animals and plants collected in Newfoundland and Labrador.* McGill University Library.

—— 1768–71. *Journal of a Voyage round the world with Captain Cook* 1768–1771. MS. in Mitchell Library, Sydney (now being published). (Photographic copy in British Museum.) See Hooker.

—— n.d. [*MS. Lists in an unknown hand of the Bird Skins in Banks's Collection, from Labrador, the voyages of Captain Cook, the Cape of Good Hope etc.*] 4 pts. [In British Museum (Natural History).)

—— [1822.] *MS. Inventory of the Library of Sir Joseph Banks.* 2 vols. British Museum.

—— n.d. [*Natural History Drawings by Various Artists namely, D'Auvergne, Cleveley, Colnett, Engleheart, Gilpin, Gordon, Greenwood, Metz, Miller, Paillou, Perrin, Rymsdyk, Sowerby et al. in the collection of Sir Joseph Banks.*] In British Museum, Print Room, 199* B 4.

Banks, Sophia. 1772. Transcript of *Journal of a Voyage to Newfoundland and Labrador* etc. by her brother q.v. MS. British Museum (Natural History).

Beaglehole, J. C. 1955. (ed.) *The Journals of Captain James Cook. The Voyage of the Endeavour,* 1768–1771. Hakluyt Society.

Bennet, A. G. 1931. Additional Notes on the Birds of the Falkland Islands and Dependencies. *Ibis,* 13th ser., **1** : 12–13.

Bishop, L. B. 1938. Correct names for the Red-backed Sandpiper and the Northern Long-billed Curlew. *Condor,* **40** : 225–226.

Bloch, M. E. & Schneider, J. G. 1801. *M. E. Blochii—Systema Ichthyologiae iconibus CX illustratum. Post obitum auctoris opus inchoatum absolvit, correxit, interpolavit Jo. Gottlob Schneider, Saxo.* 2 vols. Berolini.

Boswell, James. 1951. *Boswell's London Journal* 1762–1763. Yale Editions of the Private Papers of James Boswell. London.

Bourne, W. R. P. 1957. The Sooty Petrel of Latham, *Fregetta fuliginosa* (Gmelin). *Bull. Brit. Orn. Cl.* **77** : 40–42.

Britten, James. 1884. Francis Masson. *J. Bot.* **22** : 114–123.

—— Masson's Drawings of South African Plants. *Ibid.* **22** : 144–148.

—— 1885. The Forster Herbarium. *Ibid.* **23** : 360–368.

BRITTEN, JAMES. 1900–05. *Illustrations of Australian Plants collected in 1770 during Captain Cook's Voyage—with determinations by J. Britten.* London.

BROWN, PETER. 1776. *Nouvelles Illustrations de Zoologie.* London. (Text both in French and English.)

BRYAN, E. H. Jr. & GREENWAY, J. C. Jr. 1944. Contribution to the Ornithology of the Hawaiian Islands. *Bull. Mus. Comp. Zool. Harvard,* **94** : 79–142.

BUFFON, Count G. L.L. DE. 1779. *Histoire Naturelle des Oiseaux,* **6**. Paris.

BULLER, WALTER L. 1887–88. *History of the Birds of New Zealand.* 2nd ed. 2 vols. London.

BULLOCK, W. 1816. *A Companion to the London Museum, and Pantherion . . . .* London.

—— 1819. *Catalogue—of the Roman Gallery—and the London Museum of Natural History—which will be sold—by Mr. Bullock.* London. (Annotated Copy. British Museum (Natural History).)

BURROUGHS, ALAN. 1943. *John Greenwood in America.* Harvard.

CAIN, A. J. 1955. A Revision of *Trichoglossus haematodus* and of the Australian platycercine parrots. *Ibis,* **97** : 432–479.

CAMERON, H. C. 1952. *Sir Joseph Banks, K.B., P.R.S. The Autocrat of the Philosophers.* London.

CARTWRIGHT, GEORGE. 1792. *A journal of transactions—during a residence of nearly sixteen years on the coast of Labrador.* 3 vols. Newark.

CASHION, T. G. 1953. The Royal Penguin in Tasmanian Waters. *Emu,* **53** : 209–211.

COOK, JAMES. 1955. *The Journals of Captain James Cook. The Voyage of the Endeavour,* 1768–1771. Ed. J. C. Beaglehole. Hakluyt Society.

—— 1777. *A Voyage towards the South Pole and round the World. Performed in H.M.S Resolution and Adventure, in 1772–1775. In Which is included Capt. Furneaux's Narrative etc.* 2 vols. London.

—— & KING, JAMES. 1784. *A Voyage to the Pacific Ocean undertaken by command of his Majesty for making discoveries in the Northern Hemisphere etc.* 1776–1780. London.

DAUBENTON, E. L. 1771–86. *Histoire Naturelle des Oiseaux.* (Edition with " Planches enluminées " drawn by Martinet.) 10 vols. Paris.

D'AUVERGNE, PHILIP. 1773. [Original drawings of birds and fishes executed on Phipps's voyage towards the North Pole in 1773] ; ff. 2–6 in *Natural History Drawings by Various Artists in the Collection of Sir Joseph Banks* q.v.

—— 1805. Biographical Memoir of Philip D'Auvergne, Duke of Bouillon . . . . *Naval Chronicle,* **13** : 169–191.

DE BEER, Sir G. R. 1952. The Relations between Fellows of the Royal Society and French Men of Science when France and Britain were at war. *Notes and Records Roy. Soc.* **9** : 244–299.

DEMPSTER, GEORGE. 1934. *Letters of George Dempster to Sir Adam Fergusson* 1756–1813. *With some account of his life.* Ed. James Fergusson. London.

DRYANDER, JONAS. n.d. *Manuscript Catalogue of the drawings of Animals in the Library of Sir J. Banks arranged in systematic order.* 251. pp. (In British Museum (Natural History).)

—— n.d. [*Manuscript Catalogue of drawings of birds by W. W. Ellis and William Webber, and of specimens collected on Captain James Gook's Third Voyage round the World* 1776–1780.] 16 pp. (In British Museum (Natural History).)

—— 1796–1800. *Catalogus Bibliothecae Historica-Naturalis J. Banks.* 5 vols. London.

DWIGHT, JONATHAN. 1925. The Gulls (Laridae) of the World. *Bull. Amer. Mus. Nat. Hist.* **52** : 63–408.

DYER, R. A. ? 1949. Colonel Robert Jacob Gordon's Contribution to South African Botany. *S. African Biol. Soc.* Pamphl. **14** : 44–62.

EDWARDS, GEORGE. 1743–51. *A Natural History of Birds.* 4 pts. London.

ELLIS, WILLIAM W. 1776–80. [*Unpublished Water-colour and Pencil Drawings of Animals made during Cook's Third Voyage.*] (In British Museum (Natural History).)

ELLIS, WILLIAM W. 1783. *An Authentic Narrative of a Voyage performed by Captain Cook and Captain Clerke in His Majesty's Ships Resolution and Discovery, during the years* 1777, 1778, 1779 and 1780. 2 vols. London.

FALLA, R. A. 1937. *B.A.N.Z. Antarctic Research Expedition.* Reports, ser. B, **2** : Birds. 14 + 288 pp. Adelaide.

—— 1940. The Genus *Pachyptila* Illiger. *Emu,* **40** : 218–236.

—— 1942. Review of the smaller forms of *Pterodroma* and *Cookilaria.* *Ibid.* **42** : 111–118.

FERGUSSON, JAMES. See Dempster, George.

FLEMING, C. A. 1950. Some South Pacific Sea-bird Logs. *Emu,* **49** : 169–188.

—— & SERVENTY, D. L. 1943. The Races of *Puffinus assimilis* in Australia and New Zealand. *Emu,* **43** : 113–125.

—— 1952. On the specific name of the Little Shearwater. *Ibid.* **52** : 17–23.

FORSTER, J. G. A. 1772–75. [*Unpublished Water-colour and Pencil Drawings of Animals made during Cook's Second Voyage.*] Fol. British Museum (Natural History).

—— n.d. [*Catalogue of the drawings and collections of Animals taken on Cook's Second Voyage,* 1772–1775.] List 1 : an annotated list of the drawings (28 pp.). List 2 : a list of specimens with localities (21 pp.). MS. British Museum (Natural History).

—— 1777. *A Voyage Round the World in His Britannic Majesty's Sloop, Resolution, commanded by Capt. James Cook, during the years* 1772–5. 2 vols. London.

—— 1780. Beschreibung des rothen Baumläufers von der Insel O-Waihi. *Göttingisches Mag. Wiss. Litt.* 1, pt. 2 : 346–351.

FORSTER, J. R. 1778. *Observations made during a Voyage round the World, on Physical Geography, Natural History and Ethnic Philosophy* . . . . London.

—— 1781. Historia Aptenodytae. Generis avium orbi australi proprii. *Comm. Soc. Reg. Sci. Gott.* 1780, **3** : 121–148.

—— 1785. Mémoire sur les Albatros. *Mém. Math. Phys. Paris* (*Acad. Sci.*) **10** : 563–572.

—— 1844. *Descriptiones Animalium quae in itinere ad maris australis terras per annos* 1772, 1773 *et* 1774 *suscepto collegit observavit et delineavit Joannes Reinoldus Forster.* Ed. Lichtenstein, Berlin.

FRIEDMANN, H. 1950. Birds of North and Middle America. Pt. 11. Families Cathartidae, Accipitridae, Pandionidae, Falconidae. *Bull. Smithsonian Inst. U.S. Nat. Mus.* **50** : 13 + 793 pp.

FRIES, R. E. 1940. Daniel Solander 1733–1782. *K. svenska Vetensk. Akad. Årsbok.* **38** : 279–301.

GADOW, H. 1884. Passeriformes : Cinnyrimorphae. *Cat. Birds Brit. Mus.* **9** : 257.

GARNOT, M. P. 1826. Remarques sur la Zoölogie des îles Malouines faites pendant le Voyage autour du monde de la Corvette la Coquille, exécuté en 1822, 1823, 1824 et 1825. *Ann. Sci. Nat.* **7** : 39–59.

GMELIN, J. F. 1788–93. *Systema Naturae . . . Editio Decima Tertia . . . cura J. F. Gmelin.* 3 vols. Lipsiae.

GODMAN, F. DU CANE. 1907–10. *Monograph of the Petrels.* London.

GORDON, R. J. n.d. [Original Drawings of South African Birds and other Animals ; ff. 32–60 in *Natural History Drawings by Various Artists in the Collection of Sir Joseph Banks,* q.v.]

GRANT, C. H. B.& MACKWORTH-PRAED, C. W. 1952. On the Species and Races of the Yellow Wagtails from Western Europe to Western North America. *Bull. Brit. Mus.* (*Nat. Hist.*) *Zool.* **1** : no. 9, 255–268.

—— —— 1954. Notes on some petrel names. *Bull. Brit. Orn. Cl.* **74** : 71–73.

GRAY, G. R. 1844. *List of the Specimens in the Collection of the British Museum,* **3**. London.

—— & SHARPE, R. BOWDLER. 1844–75. *Zoology of the Voyage of H.M.S. Erebus and Terror.* Birds. London.

GREENWAY, J. C. 1958. *Extinct and Vanishing Birds of the World.* New York.

GREENWOOD, JOHN. n.d. [Original Drawings of Birds and other Animals ; ff. 116–119, 127, in *Natural History Drawings by Various Artists in the Collection of Sir Joseph Banks,* q.v.]

HARRISON, JAMES. 1806. *Life of the Right Honourable Horatio Lord Viscount Nelson* . . . . 2 vols. London.

HARTERT, E. 1892. Picariae (in part). *Cat. Birds Brit. Mus.* **16.**

HELLMAYR, C. E. 1919–49. Catalogue of Birds of the Americas and the adjacent islands in the Field Museum of Natural History. *Publ. Field Columbian Mus. Zool. Ser.* **13,** pts. 1–11.

HINDWOOD, K. A. 1946. The White-fronted Tern (*Sterna striata*) in Australia. *Emu,* **45** : 179–200.

HOOKER, Sir J. D. 1896. *Journal of the Right Hon. Sir Joseph Banks Bart., K.B., P.R.S. during Captain Cook's First Voyage in H.M.S. Endeavour in 1768–1771 to Terra del Fuego, Otahite, New Zealand, Australia, The Dutch East Indies* etc. Ed. by J. D. Hooker. London.

HUTCHINSON, JOHN. 1946. *A Botanist in South Africa.* London.

IREDALE, TOM. 1913. Solander as an Ornithologist. *Ibis,* 10th ser., **1** : 127–135.

—— 1925. George Forster's Paintings. *Austr. Zool.* **4** : 48–53.

—— 1925*a*. Captain Cook's Artists. *Austr. Mus. Mag.* **2** : 224–230.

—— 1937. J. R. and G. Forster, Naturalists. *Emu,* **37** : 95–99.

JARDINE, W. & SELBY, P. J. 1826–35. *Illustrations of Ornithology.* Edinburgh.

KEEVIL, J. J. 1933. William Anderson, 1748–1778, Master Surgeon, Royal Navy. *Ann. Med. Hist.* N.S. **5** : 511–524. (Reprinted in *J. Roy. Naval Med. Service,* 1935.)

KER, I. B. 1818. Of the three species of the natural Order Orchideae, represented in Plate VI. *J. Sci. Arts,* **4** : 199–206.

KOZLOVA, E. V. 1945. Individual variation of *Cyanosylvia svecica* (L.) and the probable trend of its evolution. *Zool. J. Moscow,* **24** : 299–308. (English Summary.)

KUHL, HEINRICH. 1820. *Beiträge zur Zoologie und vergleichenden Anatomie.* Frankfurt-am-Main.

LATHAM, J. 1781–1802. *A General Synopsis of Birds.* 3 vols. (in 6), with two Supplements (2 vols.).

—— 1790. *Index Ornithologicus.* 2 vols. London. A supplement appeared later and was bound in the 2nd volume of the supplement to the General Synopsis. Sherborn (*Index Animalium*) gives 1801 as date of publication but Zimmer (*Cat. Ayer Ornithological Library*) gives some evidence that 1802 is more probable.

—— 1821–28. *General History of Birds.* 11 vols. London.

LEFRANC, J. 1929. *Bougainville et ses Compagnons.* Paris.

LESSON, R. P. 1827. Description du genre Todiramphe, et de deux espèces d'oiseaux. *Mém. Soc. d'Hist. nat. Paris,* **3** : 419–422.

—— 1828. *Manuel d'Ornithologie.* 2 vols. Paris.

LEVAILLANT, F. 1796–1812. *Histoire naturelle des Oiseaux d'Afrique.* 6 vols. Paris.

LEVER, A. 1806. *Catalogue of the Leverian Museum.* 7 pts. with appendix. London. (Annotated copy with sale prices etc. in British Museum (Natural History).)

LINNAEUS, C. 1758. *Systema Naturae.* Tom. 1, 10th ed., Holmiae.

—— 1766. *Systema Naturae.* Tom. 1, 12th ed., Holmiae. (An interleaved copy with MS. notes by Solander is in the British Museum (Natural History).)

LÖNNBERG, E. 1921. The Birds of the Juan Fernandez Islands. *Nat. Hist. Juan Fernandez and Easter Island* (ed. C. J. F. Skottsberg), **3,** Zoology : 1–17.

—— Notes on Birds from Easter Island. op. cit. : 19–24.

LOWE, P. R. 1927. On the anatomy and systematic position of *Aechmorhynchus cancellatus* (Gmelin), together with some notes on the Genera *Bartramia* and *Mesoscolopax* etc. *Ibis,* 12th ser. **3** : 114–132.

LYSAGHT, AVERIL. 1952. Manchots de l'Antarctique en Nouvelle-guinée. *L'Oiseau et R.F.O.* **22** : 120–124.

—— 1953. A Rail from Tonga, *Rallus philippensis ecaudata* Miller, 1783. *Bull. B. O. Cl.* **73** : 74–75.

—— 1956. A note on the Polynesian Black or Sooty Rail *Porgana nigra* (Miller), 1784. *Ibid.* **76** : 97–98.

LYSAGHT, AVERIL & SERVENTY, D. L. 1956. Some erroneous distribution records in Parkinson's "Journal of a Voyage to the South Seas, 1773." *Emu*, **56** : 129–130.

MASSON, FRANCIS. 1776. An Account of Three Journeys from the Cape Town into the Southern Parts of Africa; undertaken for the discovery of new Plants, towards the Improvement of the Royal Botanical Gardens at Kew. By Mr. Francis Masson, one of his Majesty's Gardeners. Addressed to Sir John Pringle, Bart., P.R.S. *Phil. Trans.* **66**, pt. 1 : 268–317.

MATHEWS, G. M. 1910–27. *Birds of Australia.* 13 vols. London.

—— 1927–30. *Systema Avium Australasianarum.* 2 vols. London.

—— 1931. John Latham (1740–1837): an early English Ornithologist. *Ibis*, 13th ser. **1** : 466–475.

—— 1938. *Pachyptila*, or the Prions. *Emu*, **37** : 280–284.

—— & IREDALE, TOM. 1921. *A Manual of the Birds of Australia*, **1**. London.

—— —— 1921*a*. Notes of interest. *Australian Avian Record*, **4**, no. 6 : 139–164.

MAYR, E. 1931. Birds collected during the Whitney South Sea Expedition. 13. A systematic list of the birds of Rennell Island with descriptions of new species and sub-species. *Amer. Mus. Novit.* **486** : 29 pp.

—— 1932. Birds collected during the Whitney South Sea Expedition. 18. Notes on Meliphagidae from Polynesia and the Solomon Islands. *Ibid.* **516** : 30 pp.

—— 1935. Birds collected during the Whitney South Sea Expedition. 30. Descriptions of twenty-five new species and sub-species. *Ibid.* **820** : 6 pp.

—— 1941. Birds collected during the Whitney South Sea Expedition. 47. Notes on the genera *Halcyon*, *Turdus* and *Eurostopodus*. *Ibid.* **1152** : 7 pp.

—— 1942. Birds collected during the Whitney South Sea Expedition. 48. Notes on the Polynesian species of *Aplonis*. *Ibid.* **1166** : 6 pp.

—— 1944. Birds collected during the Whitney South Sea Expedition. 54. Notes on some genera from the southwest Pacific. *Ibid.* **1269** : 8 pp.

—— 1945. *Birds of the Southwest Pacific.* New York.

—— 1949. Artbildung und Variation in der *Halcyon-Chloris* Gruppe. *Ornithologie als Biologische Wissenschaft . . . Festschrift . . . E. Stresemann* : 55–60. Heidelberg.

—— & AMADON, D. 1941. Birds collected during the Whitney South Sea Expedition. 46. Geographical variation in *Demigretta sacra* (Gmelin). *Amer. Mus. Novit.* **1144** : 11 pp.

—— & RIPLEY, S. D. 1941. Birds collected during the Whitney South Sea Expedition. 44. Notes on the genus *Lalage* Boie. *Ibid.* **1116** : 18 pp.

MERREM, BLASIUS. 1784–86. *Beyträge zur besondern Geschichte der Vögel.* Göttingen.

—— 1786–87. *Avium rar. et minus cognit. Icones et descript.* (A Latin edition of the *Beyträge*, with scientific binomials.) Lipsiae.

MERRILL, E. D. 1954. The Botany of Cook's Voyages and its Unexpected Significance in Relation to Anthropology, Biogeography and History. *Chronica Botanica*, **14**, nos. 5/6 : 162–384.

METZ, GERTRUD. n.d. [Original Drawings of Birds from Cook's Scond Voyage round the World, 1772–1775; ff. 61–64 in *Natural History Drawings by Various Artists in the Collection of Sir Joseph Banks* q.v.]

MILLER, J. F. n.d. [Original Drawings of Birds and other Animals; ff 65–86 in *Natural History Drawings by Various Artists in the Collection of Sir Joseph Banks*, q.v.]

—— 1776–85. *Various Subjects of Natural History, wherein are delineated Birds, Animals and many curious Plants, etc.* London. (See Sherborn & Iredale, 1921.)

—— 1796. *Cimelia Physica.* London. (Another edition of the previous work, with text by George Shaw.)

MULLENS, W. H. 1915. Some Museums of Old London. 1. The Leverian Museum. *Museums J.* **15** : 162–172.

MÜLLER, PHILIPP LUDWIG STATIUS. 1773–76. *Des Ritters C. von Linné . . . vollständiges Natursystem nach der zwölften Lateinischen Ausgabe*, etc. 6 Thl. and Suppt. (in 9 vols.). Nürnberg.

Murphy, R. C. 1924. The Whitney South Sea Expedition. A sketch of the Bird Life of Polynesia. *Natural History*, **24** : 539–553.

—— 1924*a*. Birds collected during the Whitney South Sea Expedition. 1. *Amer. Mus. Novit.* **115** : 11 pp.

—— 1927. On certain forms of *Puffinus assimilis* and its allies. *Ibid.* **276** : 15 pp.

—— 1936. *Oceanic Birds of South America.* 2 vols. New York.

—— & Irving, Susan. 1951. Review of the Frigate-petrels (*Pelagodroma*). *Amer. Mus. Novit.* **1506** : 17 pp.

—— & Mathews, G. M. 1928. Birds collected during the Whitney South Sea Expedition. 5. *Ibid.* **337** : 18 pp.

—— —— 1929. Birds collected during the Whitney South Sea Expedition. 6. *Ibid.* **350** : 21 pp.

—— & Pennoyer, J. M. 1952. Birds collected during the Whitney South Sea Expedition. 60. Larger Petrels of the Genus *Pterodroma*. *Ibid.* **1580** : 43 pp.

—— & Snyder, J. Pennoyer. 1952. The " Pealea " phenomenon and other notes on storm petrels. *Ibid.* **1596**. 16 pp.

Oliver, W. R. B. 1930. *New Zealand Birds.* Wellington.

Paillou, Peter. n.d. [Original Drawings of Birds and other Animals ; ff. 87–110 in *Natural History Drawings by Various Artists in the Collection of Sir Joseph Banks* q.v.]

Palmer, T. S. 1916. The Type Locality of *Colaptes cafer*. *Auk*, **33** : 322–324.

Parkinson, Sydney. 1766–68. [*Drawings of Birds, Fishes etc.*] British Museum, Print Room, 199* B 1, ff. 1–52.

—— 1768–71. [*Unpublished Water-colour Drawings of Animals made during Cook's First Voyage.*] Fol. British Museum (Natural History).

—— 1773. *A Journal of a Voyage to the South Seas in His Majesty's Ship The Endeavour.* London.

Peale, Titian R. 1848. Mammalia and Ornithology. *United States Exploring Expedition* during 1838–42, *etc.* **8**.

Von Pelzeln, A. 1873. On the Birds in the Imperial Collection at Vienna obtained from the Leverian Museum. *Ibis*, 3rd ser. **3** : 14–54 ; 107–124.

Pennant, T. 1766. *British Zoology.* London and Chester.

—— 1781. *History of Quadrupeds.* London.

—— 1781*a*. *Genera of Birds.* London.

—— 1784–87. *Arctic Zoology.* 2 vols. and suppt. London.

—— 1793. *The Literary Life of the Late Thomas Pennant Esq.* London.

Peters, H. S. & Burleigh, T. D. 1951. *The Birds of Newfoundland.* Boston.

Peters, J. L. 1931–51. *Check List of Birds of the World.* 7 vols. Cambridge, Mass.

Phillip, Arthur. 1789. *The Voyage of Governor Phillip to Botany Bay* . . . . London. (Compiled from various journals.)

Phipps, C. J. 1774. *A Voyage towards the North Pole undertaken by His Majesty's Command* 1773. London.

Pritzel, J. A. 1872. *Thesaurus Literaturae Botanicae.* nov. ed. Lipsiae.

Ripley, S. D. & Birckhead, H. 1942. Birds collected during Whitney South Sea Expedition. 51. On the fruit pigeons of *Ptilinopus purpuratus* group. *Amer. Mus. Novit.* **1192** : 14 pp.

Rothschild, W. 1893–1900. *The Avifauna of Laysan*, 3 pts. London.

—— 1907. *Extinct Birds.* London.

Rowley, G. D. (ed.). 1875. *Ornithological Miscellany*, **1**. London and Brighton.

Salvadori, T. 1891. Psittaci or Parrots. *Cat. Birds Brit. Mus.* **20**.

—— 1893. Columbae or Pigeons. *Ibid.* **21**.

Salvin, O. 1875. Critical Notes on Procellariidae. Pt. 1. Banks's unpublished Drawings. *Rowley's Ornithological Miscellany*, **1** : 223–238.

—— 1879. On some Birds transmitted from the Samoan Islands by the Rev. T. Powell. *Proc. Zoo. Soc. London* : 128–131.

—— 1896. Tubinares (Petrels and Albatrosses). *Cat. Birds Brit. Mus.* **25**.

SASSI, M. 1928. *Hypocharmosyna pygmaea* Gm. = *Hypocharmosyna palmarum* Gm. *Ornith. Monatsber.* **36** : 53.

SAUNDERS, H. 1896. Gaviae (Terns, Gulls and Skuas). *Cat. Birds Brit. Mus.* **25**.

SAWYER, F. C. 1950. Some Natural History Drawings made during Captain Cook's first voyage round the world. *J. Soc. Bibl. Nat. Hist.* **2** : 190–193.

SEEBOHM, H. 1881. Cichlomorphae : Part 2 containing the family Turdidae (Warblers and Thrushes). *Cat. Birds Brit. Mus.* **5**.

SHARPE, R. BOWDLER. 1875. Striges. *Cat. Birds Brit. Mus.* **2**.

—— 1883. Cichlomorphae : part 4. *Ibid.* **7**.

—— 1890. Passeriformes or Perching Birds : Sturniformes etc. *Ibid.* **13**.

—— 1892. Picariae (in part). *Ibid.* **17**.

—— 1906. *The History of the Collections contained in the Natural History Departments of the British Museum* : Birds, **2** : 79–515.

SHAW, GEORGE. 1796. See Miller, J. F., 1796.

—— 1800–26. *General Zoology or Systematic Natural History.* 14 vols. (in 28). (Completed by J. F. Stephens.) London.

—— & NODDER, F. P. 1789–1808. *The Naturalist's Miscellany.* 19 vols. London.

SHERBORN, C. D. 1902–33. *Index Animalium.* 11 vols. London.

—— 1940. *Where is the —— Collection ?* Cambridge.

—— & IREDALE, TOM. 1921. *J. F. Miller's Icones. Ibis,* 11th ser., **3** : 302–309.

SKOTTSBERG, C. J. F. (Ed.). 1921.–40. *The Natural History of Juan Fernandez and Easter Island.* 3. Zoology. See Lönnberg, E.

SMITH, EDWARD. 1911. *Life of Sir Joseph Banks* . . . . London.

SOLANDER, D. C. n.d. [*Descriptions of animals observed during Captain Cook's First Voyage.*] Solander MS. Z4 ; in British Museum (Natural History).

—— n.d. MS. annotations to the *Systema Naturae*, 12th ed. See Linnaeus, 1766.

SPARRMAN, A. 1786. *A Voyage to the Cape of Good Hope, towards the Antarctic Polar Circle, and Round the World but chiefly into the Country of the Hottentots and Caffres from the year 1772 to 1776. Translated from the Swedish original* [by G. Forster]. 2nd ed. London.

—— 1786–89. *Museum Carlsonianum.* 4 fasc. Holmiae.

SPRENGEL, WILHELMINA. 1799. [*Autograph Letter to Sir Joseph Banks.*] British Museum, Manuscript Room. *Add. MSS.* 8098 : 486–487.

STICKNEY, E. H. 1943. Birds collected during the Whitney South Sea Expedition. 53. Northern Shore Birds in the Pacific. *Amer. Mus. Novit.* **1248** : 9 pp.

[STRESEMANN, E.] 1927. Eine *Pennula sandwichensis* im Wiener Museum entdeckt. *Orn. Monatsber.* **35** : 49.

STRESEMANN, E. 1949. Birds collected in the North Pacific Area during Capt. James Cook's last voyage (1778 and 1779). *Ibis,* **91** : 244–255.

—— 1950. Birds collected during Capt. James Cook's last expedition (1776–80). *Auk,* **67** : 66–88.

—— 1953. Additions and correction to " Birds collected in the North Pacific Area during Capt. James Cook's last voyage." (' Ibis ', 1949 : 244–255). *Ibis,* **95** : 371.

SWAINSON, W. 1840. *Taxidermy with the Biography of Zoologists and Notices of their Works.* London.

SWARTH, H. S. 1912. Report on a collection of birds and mammals from Vancouver Island. *Univ. Calif. Publ. Zool.* **10** (1) : 125 pp.

—— 1920. Revision of the avian genus *Passerella* with special reference to the distribution and migration of the races in California. *Ibid.* **21** : 75–224.

TEMMINCK, C. J. (*in* Knip, P. de). 1809–11. *Les Pigeons.* Paris.

TOWNSEND, C. H. & WETMORE, A. 1919. Reports on the Scientific Results of the expedition to the tropical Pacific in charge of Alexander Agassiz, on the—" Albatross "—1899–1900—. 21. The Birds. *Bull. Mus. Comp. Zool. Harvard,* **63** : 151–225.

VAURIE, C. 1949. A Revision of the Bird Family Dicruridae. *Bull. Amer. Mus. Nat. Hist.* **93** : 205–342.

VIEILLOT, LOUISE-PIERRE. 1816–19. Articles on birds in the *Nouveau Dictionnaire d'Histoire Naturelle*. 2nd ed., 36 vols. Paris.

WAGLER, J. 1829. Beyträge und Bemerkungen zu dem ersten Bande seines Systema Avium (Fortsetzung III). *Isis*, **22** : 736–762.

—— 1830. *Natürliches System der Amphibien mit vorangehender Classification der Säugthiere und Vögel*. München, Stuttgart und Tübingen.

WEBBER, JOHN. 1776–80. [*Unpublished Water-colour Drawings of Animals made during Cook's Third Voyage*.] Print Room, British Museum.

WHITE, JOHN. 1790. *Journal of a Voyage to New South Wales*. London.

WHITTELL, H. M. 1954. *The Literature of Australian Birds : A History and a Bibliography of Australian Ornithology*. Perth.

WIGLESWORTH, L. W. 1891. Aves Polynesiae. A Catalogue of the Birds of the Polynesian Subregion (not including the Sandwich Islands). *Abh. Ber. König. Zool. Mus. Dresden* 1890–91 : 10 + 92 pp.

WILSON, SCOTT B. & EVANS, A. H. 1890–99. *Aves Hawaiienses : The Birds of the Sandwich Islands*. London.

WOOD, CASEY A. 1931. *An Introduction to the Literature of Vertebrate Zoology*. London.

APPENDIX A

List of Birds Collected by Sir Joseph Banks in Newfoundland and Labrador, May-October, 1766.

Most of the birds in this list have been identified from Banks's detailed descriptions in the McGill MS. of the animals he collected in Newfoundland and Labrador. His notes, now bound together, were originally on loose sheets for, as he explains, " I could not carry any Book without submitting it to the inspection of every petty Officer who chose to peruse it, I was contented with notes taken on small pieces of paper" (Transcript, S. Banks : 41). That many sheets are now unfortunately missing is shown by some catalogue numbers and by numbered references in the diary to descriptions of animals other than birds only two of which can now be found. Some of the notes on birds are also missing but it has been possible to supplement those that have survived by reference to brief descriptions in the diary, to the annotated lists of bird skins in his collection at a later date, and to the paintings by Parkinson and Paillou discussed elsewhere in this study. The species listed below are arranged systematically. A detailed account of Banks's collections will be published elsewhere.

COLYMBIDAE	*Colymbus immer* Brunn., 1764. *Colymbus stellata* Pontoppidan, 1763.
PODICIPIDAE	*Podiceps auritus* (Linn.), 1758.
ARDEIDAE	*Botaurus lentiginosus* (Montagu), 1813.
ANATIDAE	*Anas acuta tzitzihoa* Vieillot, 1816. *Anas crecca carolinensis* Gm., 1788. *Anas discors* Linn., 1766. *Histrionicus histrionicus* (Linn.), 1758. *Somateria mollissima* (Linn.) 1758. *Somateria spectabilis* (Linn.), 1758.

Anatidae	*Melanitta fusca deglandi* (Bonaparte), 1850.
	Melanitta perspicillata (Linn.), 1758.
	Camptorhynchus labradorius (Gm.), 1789.
	Mergus serrator Linn., 1758
Accipitridae	*Accipiter gentilis novae-terrae* (Gm.), 1788.
	Buteo lagopus s.-johannis (Gm.), 1788.
	Aquila chrysaetos canadensis (Linn.), 1758.
	? *Haliaeëtus leucocephalus washingtoniensis* (Audubon), 1827.
	Circus cyaneus hudsonius (Linn.), 1766.
	Falco peregrinus anatum Bonaparte, 1838.
	Falco columbarius columbarius Linn., 1758.
Tetraonidae	*Lagopus lagopus lagopus* (Linn.), 1758.
	Lagopus lagopus alleni Stejneger, 1884.
	Canachites canadensis (Linn.), 1758.
Charadriidae	*Charadrius hiaticula semipalmatus* Bonaparte, 1825.
	Pluvialis dominica dominica (Müller), 1776.
	Arenaria interpres (Linn.), 1758.
Scolopacidae	*Capella gallinago delicata* (Ord.), 1825.
	Numenius phaeopus hudsonicus Latham, 1790.
	Numenius borealis (Forster), 1772.
	Actitis macularia (Linn.), 1766.
	Tringa melanoleuca (Gm.), 1789.
	Erolia melanotos (Vieillot), 1819.
	Erolia fuscicollis (Vieillot), 1819.
	Erolia minutilla (Vieillot), 1819.
	Erolia alpina pacifica (Coues), 1862.
	Limnodromus griseus (Gm.), 1789.
	Ereunetes pusillus (Linn.), 1766.
	Limosa haemastica (Linn.), 1758.
	Crocethia alba (Pallas), 1764.
Phalaropodidae	*Phalaropus fulicarius* (Linn.), 1758.
	Lobipes lobatus (Linn.), 1758.
Stercoraridae	*Stercorarius* sp. (immature bird).
Laridae	*Larus marinus* Linn., 1758.
	Rissa tridactyla (Linn.), 1758.
Alcidae	*Pinguinus impennis* (Linn.), 1758.
	Cepphus grylle (Linn.), 1758.
Strigidae	*Surnia ulula caparoch* (Müller), 1776.
Alcedinidae	*Ceryle alcyon* (Linn.), 1758.
Picidae	*Colaptes auratus* (Linn.), 1758.
	Dendrocopus villosus terraenovae (Batchelder), 1908.
Alaudidae	*Eremophila alpestris* (Linn.), 1758.

HIRUNDINIDAE	*Hirundo rustica erythrogaster* Boddaert, 1783.
CORVIDAE	*Perisoreus canadensis nigricapillus* Ridgway, 1883.
	Cyanocitta cristata bromia Oberholser, 1921.
TURDIDAE	*Turdus migratorius* (Linn.), 1766.
	Hylocichla ustulata (Nuttall), 1840.
LANIIDAE	*Lanius excubitor borealis* Vieillot, 1807.
COMPSOTHLYPIDAE	*Dendroica petechia* (Linn.), 1766.
	Dendroica breviunguis (Spix), 1824.
	Dendroica palmarum (Gm.), 1789.
	Wilsonia pusilla (Wilson), 1811.
ICTERIDAE	*Euphagus carolinus* (P. L. S. Müller), 1776.
FRINGILLIDAE	*Pinicola enucleator leucura* (P. L. S. Müller), 1776.
	Loxia leucoptera Gm., 1789.
	Passerculus sandwichensis labradorius Howe, 1901.
	Passerella iliaca (Merrem), 1786.
	Melospiza georgiana (Lath.), 1790.
	Plectrophenax nivalis (Linn.), 1758.

APPENDIX B

Index to the Birds Described by Solander on Cook's First Voyage 1768–71.

The birds of Captain Cook's first expedition were drawn and described in the field by Parkinson and Solander, and a number of skins were preserved. A fair copy of Solander's descriptions was drawn up after his return to England but, perhaps owing to his premature death was never published. It is now at the British Museum (Natural History) (Solander MS. Z4.). Lists of the drawings of birds from Cook's second and third expeditions and a catalogue of bird skins in Bank's collection were recently discovered by Dr. Bourne. The Solander MS. contains the first descriptions of many southern petrels; although it was never published it influenced the study of the group because it was known to many later authors, including Kuhl, Gray, and Bonaparte, who introduced Solander's names for the same or similar species. The history of the manuscript is discussed by G. M. Mathews (*The Birds of Australia*, **2**, 1912) who published all the most important descriptions.

In the following index Solander's species are arranged in alphabetical order of genera and species with the MS. page numbers, cross references to Parkinson's drawings, and provisional identifications; the dates and localities are normally taken from Solander, and where they are taken from the plate they are given in brackets. Mathews has already analysed much of this list according to the place and date of origin of the petrels, many of which were collected at one time; further information on the date and locality of many specimens, together with additional sight records of many species, are contained in Banks's *Endeavour* diary (now in the press) and while this additional information has not been incorporated in the present list it is hoped that the publication of the provisional identifications here will make it possible to identify the birds mentioned in other diaries of Cook's voyages and help to trace the original source of names first published by Gmelin, Kuhl, Forster, Gray, and Mathews. The final draft of this list was kindly revised for me by Dr. W. R. P. Bourne.

Anas antarctica (p. 1, f. 11). Terra del Fuego. *Anas flavirostris* Vieill.

Diomedea antarctica (p. 9, f. 26). Antarctic Ocean and Terra del Fuego ; 1 Feb. 1769, 59° S. *Phoebetria palpebrata* (Forster).

Diomedea exulans (p. 3, f. 25). 23 Dec. 1768, 37° S. ; 3 Mar. 1769, Pacific Ocean, 36° 49′ S. 111° 30′ W. Immature *Diomedea exulans* Linn.

Diomedea exulans var. (p. 5). Antarctic Ocean south of Terra del Fuego ; 3 Feb. 1769, 58° 30′ S. Young female *Diomedea exulans* Linn.

Diomedea exulans var. (p. 7). Southern Ocean ; 2 Oct. 1769, 37° 10′ S. 171° 5′ W. ; 6 Jan. 1770, 35° 8′ S. 188° 30′ W. ; 11 Apr. 1770, 39° 17′ S. 204° 6′ W. Old male *Diomedea exulans* Linn.

Diomedea impavida (p. 13). Southern Ocean ; 11 April 1770, 39° 17′ S. 204° 6′ W. *Diomedea melanophris* Temm.

Diomedea profuga (p. 11). Antarctic Ocean ; 3 Feb. 1769, South of Terra del Fuego, 58° 30′ S. ; 15 Feb. 1769, South Pacific, 48° 27′ S. *Diomedea chrysostoma* Forster.

Larus canus (p. 33). " As *Larus canus* Linn."

Larus crepidatus (p. 39). " Between the Tropics " (In the Atlantic). Possibly immature *Stercorarius pomarinus* (Temm.).

Larus fuliginosa (p. 41). 4 Dec. 1768, Rio de Janeiro. Possibly immature *Stercorarius parasiticus* Linn.

Larus gregarius (p. 35, f. 32). Shores of Terra del Fuego. *Larus maculipennis* Licht.

Larus naevius (p. 37). " *As Larus naevius* Linn." *Rissa tridactyla* Linn.

Larus nigricans (p. 43). 4 Dec. 1768, Rio de Janeiro. Adult *Stercorarius parasiticus* Linn.

Larus skua (p. 45). Southern Ocean ; 23 Feb. 1770, 44° 40′ S. 188° W. *Catharacta skua* Brünnich.

Loxïa nitens (p. 119, f. 37B). South Brazil. *Volatinia jacarina* (Linn.).

Motacilla avida (p. 121, f. 38A). 28 Sept. 1768, 19° N. (Off West Africa). *Motacilla flava* Linn.

Motacilla velificans (p. 123, f. 38B). 3 Sept. 1768, at sea off France and Spain. *Oenanthe oenanthe* (Linn.).

Nectris carbonaria (p. 113). 24 Dec. 1769, near Three Kings Islands, 187° W. (New Zealand). *Puffinus carneipes* Gould. Var. 1 from 38° 52′ S. 175° 30′ W. and Var. 2 from the sea south of New Holland, 25° 33′ S., 18 May 1770, are probably *Puffinus pacificus* (Gmelin).

Nectris fuliginosa (p. 111, f. 23). Southern Ocean ; 15 Feb. 1769, 48° 27′ S. 93° W. ; 2 Oct. 1769, 37° 10′ S. 171° 5′ W. ; 6 Jan. 1770, 35° 8′ S. 188° 30′ W. ; 11 Apr. 1770, 39° 17′ S. 204° 6′ W. *Puffinus griseus* (Gmelin).

Nectris munda (p. 115, f. 24). Southern Ocean ; 15 Feb. 1769, 48° 27′ S. 93° W. ; 6 Jan. 1770, 35° 8′ S. 188° 30′ W. *Puffinus assimilis* Gould.

Nectris nugax (p. 117). Sea of New Holland. 6 June 1770, 19° S. 213′ W. *Puffinus l'herminieri* Lesson.

Otis pileata (p. 105). Bustard Bay, Australia. *Eupodotis australis* Gray.

Pelecanus antarcticus (p. 15, f. 29). Terra del Fuego. *Phalacrocorax albiventer* Lesson.

Pelecanus aquilus (p. 19, f. 28). Tropical America (Rio de Janeiro). *Fregata magnificens* Mathews.

Pelecanus piscator (p. 21). " *Pelecanus piscatrix* Linnaeus."

Pelecanus sectator (p. 17, f. 30). Southern Ocean ; 24 Dec. 1769, 33–36° S. 185–187° W. *Sula serrator* Gray.

Pelecanus sula (p. 23). The Southern Ocean near New Holland, within the tropics. *Sula leucogaster* (Boddaert).

Phaeton aethereus (p. 27). Tahiti. *Phaethon aethereus* Linn.

Phaeton erubescens (p. 29, f. 31). 21 Mar. 1769, near Tahiti. *Phaethon rubricauda melanorhynchos* Gm.

Procellaria agilis (p. 69). South Pacific; 3 Mar. 1769, 36° 49′ S. 111° 30′ W. ? *Pterodroma externa cervicalis* (Salvin).

Procellaria aequorea (p. 57, f. 13). South American Seas; 23 Dec. 1768, 37° S. *Pelagodroma marina* (Latham).

Procellaria atrata (p. 81). South Pacific, 21 Mar. 1769, 25° 21′ S. 129° W. Possibly the dark phase of *Pterodroma heraldica* (Salvin).

Procellaria capensis (p. 79). Between 30° and 40° S. in the Southern Ocean. *Daption capensis* (Linn.).

Procellaria crepidata (p. 87, f. 52 (vol. 199* B1)). Between the tropics (off West Africa). *Pterodroma mollis feae* (Salvadori).

Procellaria fregata (p. 51, f. 14). Var. A, South American Seas; 22 Dec. 1768, 37° S. *Fregetta grallaria* (Vieill.). Var. B, Southern Ocean south of Terra del Fuego; 2 Feb. 1769, 58° S. *Fregetta tropica* (Gould).

Procellaria fuliginosa (p. 77, f. 19). Southern Ocean; 2 Feb. 1769, south of Terra del Fuego, 58° S.; 23 Feb. 1769, 44° 35′ S. 109° 2′ W. *Procellaria aequinoctialis* Linn.

Procellaria gigantea var. A. (p. 73, f. 17). Off Terra del Fuego; 2 Feb. 1769, 58° S. *Macronectes giganteus* (Gmelin).

Procellaria gigantea var. B. (p. 75, f. 18). South American Seas; 22 Dec. 1768, 37° S. *Macronectes giganteus* (Gmelin).

Procellaria latirostris (p. 61). Southern Ocean. 2 Oct. 1769, 37° 10′ S. 171° 5′ W. ? *Pachyptila vittata* Forster.

Procellaria longipes (p. 63). Southern Ocean. 2 Oct. 1769, 37° 10′ S. 171° 5′ W.; 6 Jan. 1770, 35° 8′ S. 188° 30′ W.; 14 Feb. 1770, 42° 34′ S. 185° W.; 11 Apr. 1770, 39° 17′ S. 204° 6′ W. *Garrodia nereis* (Gould).

Procellaria lugens (p. 91, ff. 21, 22). Southern Ocean. 1 Feb. 1769, south of Terra del Fuego, 59° S. 3 Mar. 1769, 36° 49′ S. 111° 30′ W. *Pterodroma inexpectata* (Forster).

Procellaria melanopus (p. 85). South Pacific; 3 Mar. 1769, 36° 49′ S. 111° 30′ W.; (no date), 25° 21′ S. 129° W.; 7 Jan. 1770, 35° 6′ S. 188° 30′ W.; 11 Apr. 1770, 39° 17′ S. 204° 6′ W. *Pterodroma neglecta* (Schlegel).

Procellaria oceanica (p. 55, f. 12). Oct. 1768, Atlantic, 9° 43′ S. 23 Dec. 1768, 37° S.; 11 Apr. 1770, 39° 17′ S. 204° 6′ W. *Oceanites oceanicus* (Kuhl).

Procellaria pallipes (p. 71). Southern Ocean; 2 Oct. 1769, 37° 10′ S. 171° 5′ W. *Adamastor cinereus* (Gmelin).

Procellaria paserina (*sic*) (p. 59). Southern Ocean; 19 Sept. 1769, 29° 10′ S., 159° 20′ W. *Pelagodroma marina* (Latham).

Procellaria pelagica (p. 53). "As *Procellaria pelagica* Linnaeus."

Procellaria puffinus (p. 99). Between England and Spain, 7 July 1771. *Puffinus gravis* (O'Reilly).

Procellaria remigans (p. 97). Between England and Spain, 7 July 1771. *Fulmarus glacialis* (Linn.).

Procellaria saltatrix (p. 49). Southern Ocean; 14 Feb. 1770, 42° 34′ S. 185° W. *Garrodia nereis* (Gould).

Procellaria sandaliata (p. 89, f. 20). South American Seas; 22 Dec. 1768, 37° S. *Pterodroma incerta* (Schlegel).

Procellaria sordida (p. 83). South Pacific. 3 Mar. 1769, 36° 49′ S., 111° 30′ W.; 21 Mar. 1769, 25° 21′ S. 129° W. Pale phase of *Pterodroma neglecta* (Schlegel).

Procellaria turtur (p. 65, f. 15). South American Seas. 1 Feb. 1769, 59° S., south of Terra del Fuego. ? *Pachyptila belcheri* Mathews.

Procellaria vagabunda (p. 95). Antarctic Ocean. 3 Feb. 1769, 58° 30′ S., south of Terra del Fuego; 19 Sept. 1769, 29° 10′ S. 159° 20′ W.; 11 Apr. 1770, 39° 17′ S. 204° 6′ W. *Pterodroma lessonii* (Garnot).

Procellaria veleficans (p. 93). South Pacific. 23 Feb. 1769, 44° 35′ S. 109° 2′ W.; 3 Mar. 1769, 36° 49′ S. 111° 30′ W. *Pterodroma externa externa* (Salvin).

Procellaria velox (p. 67, f. 16). Southern Ocean. 15 Feb. 1769, 48° 27′ S. 93° W. (folio 16); 23 Feb. 1769, 44° 39′ S. 109° 2′ W.; 3 Mar. 1769, 36° 49′ S. 111° 30′ W.; 21 Mar. 1769, 25° 21′ S. 129° W.; 19 Sept. 1769, 29° 10′ S. 159° 20′ W.; 2 Oct. 1769, 37° 10′ S. 171° 5′ W.; 7 Oct. 1769, 38° 59′ S. 175° 30′ W.; 6 Jan. 1770, 35° 8′ S. 188° 30′ W.; 14 Feb. 1770, 42° 9′ S. 185° W.; 11 Apr. 1770, 39° 17′ S. 204° 6′ W. This description applies to any member of the subgenus *Cookilaria*, and it seems probable that Solander examined a number of species of the group, and possibly examples of the races of *Pterodroma hypoleuca* (Salvin) as well. The bird figured has the characteristic short bill of *Pterodroma longirostris* (Stejneger); the two birds of October 1770, are stated to have been heavier than the others examined and may belong to *Pterodroma hypoleuca*; the bird from 39° S. 204° W. may be *Pterodroma leucoptera* (Gould); the remainder probably belonged either to *Pterodroma cookii* (Gray) or *Pterodroma longirostris*.

Sterna nasuta (p. 103). Tahiti and at sea near New Holland, 26 May 1770. *Thalasseus bergii* (Lichtenstein).

Sterna nigripes (p. 101). Pacific near Otaha (Society Islands), 28 July 1769. ? *Sterna hirundo* Linn.

APPENDIX C

Cook's Itineraries (*Cook's names are given in brackets*).

The First Voyage

1768

Madeira, 14th–19th September.
Cape Verde Islands. (Cook did not anchor.)
Rio de Janeiro, 14th November–7th December.

1769

Tierra de Fuego
Vincent Bay, 15th January.
Bay of Good Success, 16th–21st January.
Tuamotu Islands, 4th–7th April. (Fishing but no landing.)
Society Islands
Tahiti, 13th April–13th July.
Huahine, 17th–20th July.
Raiatea (Ulietea), 21st–24th July.
Tahaa (Otaha), 28th–29th July.
New Zealand (both islands), 9th October-

1770

–31st March.

Australia (east coast) 29th April–23rd August. (This August day Cook landed on Booby Island, north west of Cape York.)
New Guinea
Cook Bay, north of Cape False, 3rd September.
Savu, 18th–21st September.
Djakarta (Batavia), 11th October–26th December.

1771

Princes Island, 6–15th January.
Cape of Good Hope, 15th March–15th April.
St. Helena, 2nd–4th May.

The Second Voyage

1772

Madeira, 29th July–1st August.
Cape Verde Islands
    St. Jago, 10th–14th August.
Cape Town, 30th October–22nd November.

1773

Cook sailed south to latitude 67° 15′ on 17th January, that is SSE. of Cape Town, longitude 39° 35′ E. of Greenwich.

New Zealand (South Island only)
    Dusky Bay, 26th March–11th May.
    Queen Charlotte Sound, 18th May–7th June.
    (Captain Furneaux, the *Adventure*.
        Tasmania
            Adventure Bay, 11th–15th March.
        New Zealand
            Ship Cove and Queen Charlotte Sound, 7th April–7th June.
            Poverty Bay, 9th–16th November.
            Queen Charlotte Sound, 30th November–23rd December.)
Society Islands
    Tahiti, 17th Agust–1st September.
    Huahine, 3rd–7th September.
    Raiatea, 8th–17th September.
    Tahaa was visited by Pickersgill by boat.
Friendly Islands
    Eua (Middleburgh), 2nd–3rd October.
    Tongatabu (Amsterdam), 4th–7th October.
New Zealand
    Queen Charlotte Sound, 2nd–25th November.

In December Cook sailed south-east of New Zealand to latitude 67° 5′ S., and at the end of January 1774, reached the most southerly point of all his voyages, latitude 71° 10′ S., longitude 106° 54′ W.

1774

Easter Island, 11th–16th March.
Marquesas
    Sta. Christina, 7th–11th April.
Tuamotu Islands
    Takaroa (Tiookea), 17th April.
Society Islands
    Tahiti, 22nd April–14th May.
    Huahine, 15th–23rd May.
    Raiatea, 25th May–4th June.
Palmerston Island, 17th June. (No landing.)
Niue (Savage Island), 20th–21st June.
Friendly Islands
    Nomuka (Rotterdam), 27th–29th June.
Fiji Islands
    Vatoa (Turtle Island), 2nd July.

New Hebrides
  Mallicolo, 22nd–23rd July.
  Erromango, 4th August. The Forsters tried to land and caught a watersnake but it seems unlikely that any other collecting was done.
  Tanna, 5th–20th August.
  Espiritu Santo, 26th August. Two boats landed in the Bay of St. Philip and St. James.

New Caledonia
  Cook sailed along the coast 4th September–3rd October. He landed at Balade on 5th September and collections were made during the next eight days.
  Isle of Pines, 30th September.
Norfolk Island, 10th–11th October.
New Zealand
  Queen Charlotte Sound, 18th October–10th November.
Tierra del Fuego
  Christmas Sound, 20th–28th December.
New Year Island, off Staten Land, 31st December–3rd January, 1775.
  Mr. Gilbert landed at New Year Harbour, Staten Land.

1775

South Georgia, 17th January. Cook was off the island 16th–24th January.
South Sandwich Islands, 31st January–3rd February. (No landing.)
Cape Town, 23rd March–27th April.
St. Helena, 16th–21st May.
Ascension Island, 28th–31st May.
Azores
  Fayal, 13th–19th July.

The Third Voyage

1776

Tenerife, 1st–4th August.
Cape of Good Hope, 18th October–30th November. Anderson went up country 16th–20th November.
Prince Edward's Isles, 12th December. (No landing.)
Kerguelen Land (Island of Desolation), 24th–30th December.

1777

Tasmania
  Adventure Bay, 26th–30th January.
New Zealand
  Queen Charlotte Sound, 12th–23rd February.
Cook Islands
  Mangaia, 30th March. (No landing.)
  Atiu (Wateeoo), 3rd April.
  Takutea (Otakootaia), 4th April.
  Hervey Island, 6th April.
Palmerston Island, 14th–17th April.
Friendly Islands
  Mango (Komango), 29th April. (No landing but rails, pigeons and violet-coloured coots were taken from the natives.)
  Nomuka, 2nd–14th May.
  Haapai group : Foa, Lifuka (Lefooga), 17th–20th May.
    Holeva (Halaiva), 26th May.

Kotu group : Kotu (Kotoo), 2nd–4th June.
Nomuka group : Nomuka, 5th–8th June.
Tongatabu group : Tongatabu, 10 June–10th July.
Eua (Middleburgh), 12th–17th July.

Society Islands
  Tahiti, 14th August–30th September.
  Eimeo (Moorea or York Island), 30th September–10th October.
  Huahine, 11th October–2nd November.
  Raiatea, 3rd November–7th December.
  Bolabola (Borabora), 8th December.

Line Islands
  Christmas or Turtle Island (to be distinguished from Turtle Island, Vatoa, Fiji group), 25th December–2nd January, 1778.

1778

Hawaiian Islands (Sandwich Isles)
  Kauai (Atooi), 20th–23rd January.
  Niihau (Oneeheeow), 29th January–2nd February.

Nootka or King George's Sound, 31st March–26th April.
Kaye's Island, 11th May.
Sandwich or Prince William Sound, 12th–18th May.
Cook Inlet (Cook's River), 1st June.
Aleutian Islands
  Unalaska (Oonalashka), 27th June–2nd July.

Cape Newenham, 16th July.
Bird or St. Matthew Island, 29th July.
Sledge Island, 5th August.
Tschutski country, 10th August.
Furthest north, latitude 70° 44′, 18th August.
Norton Sound, 9th–17th September.

1779

Hawaiian Islands, 25th November, 1778–15th March, 1779.
  The ships lay off the islands and traded from 25th November until 6th January when Bligh landed at the southern end of Hawaii. On 16th January they anchored in Kealakekua Bay and made their headquarters there until 4th February when they sailed to a more northerly bay where Bligh landed.. They returned to Kealakekua Bay on 11th February where, three days later, Cook was killed. During the rest of February and in the early part of March they cruised round the rest of the Hawaiian Islands and visited Oahu (Woahoo), Kauai (Atooi) and Niihau (Oneehoe).

Avatcha Bay
  Petropavlovsk, 29th April–12th June.

North through Bering St., 5th July.
South through Bering St., 30th July.
Avatcha Bay
  Petropavlovsk, 24th August–9th October.

Macao-Canton, 2nd December, 1779–12th January, 1780.

1780

Pulo Condore, 21st–28th January.
Princes Island, 13th–18th February.
Cape of Good Hope, 13th April–9th May.
Stromess (22nd Aug.).

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BRITISH MUSEUM NATURAL HISTORY

PLATE 35

Accipiter gentilis atricapillus (Wilson), 1812. Young American Goshawk. By Peter Paillou (B.M. 199* B.4, pl. 106). Banks collected this specimen in Newfoundland in 1766.

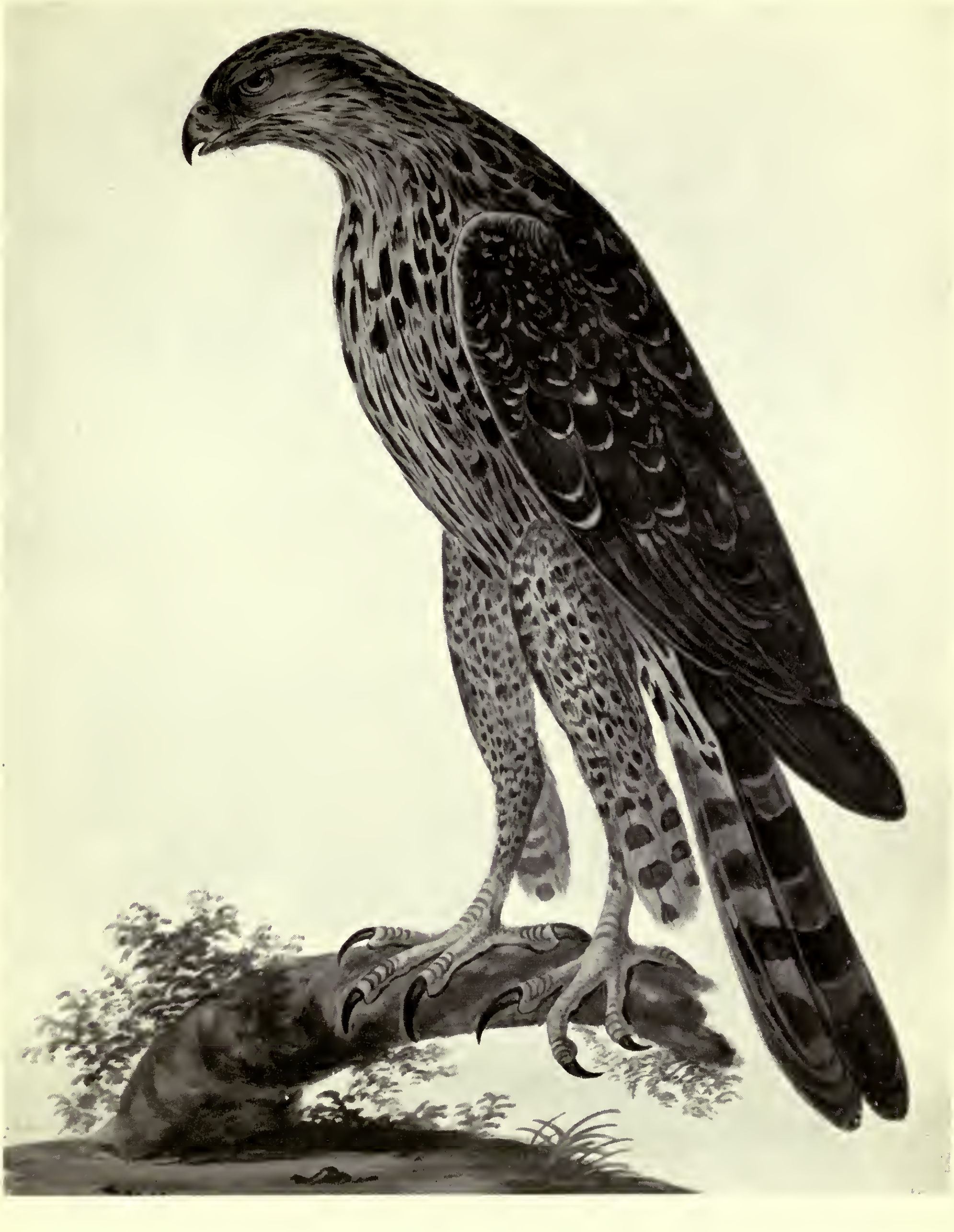
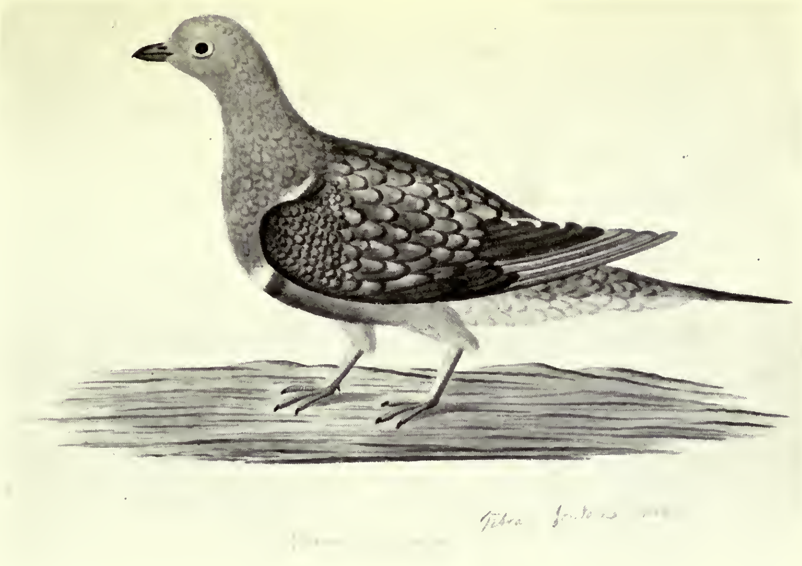


PLATE 36

(a) *Pterocles namaqua* (Gmelin), 1789. Namaqua Sand Grouse. Unsigned. (B.M. 199* B.4, pl. 41). One of a collection of paintings sent to Sir John Pringle by the botanist Masson from South Africa in 1775.

(b) *Pterodroma mollis feae* (Salvadori), 1899. Soft-plumaged Petrel. By Sydney Parkinson. (B.M. 199* B.1, pl. 52). Collected on Cook's first voyage and noted by Banks as " *Procellaria crepidata* ".



36*a*

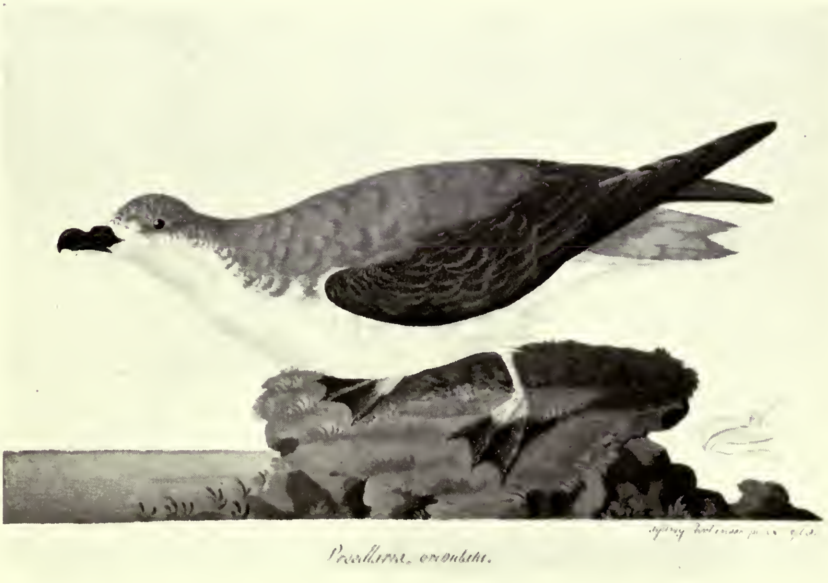


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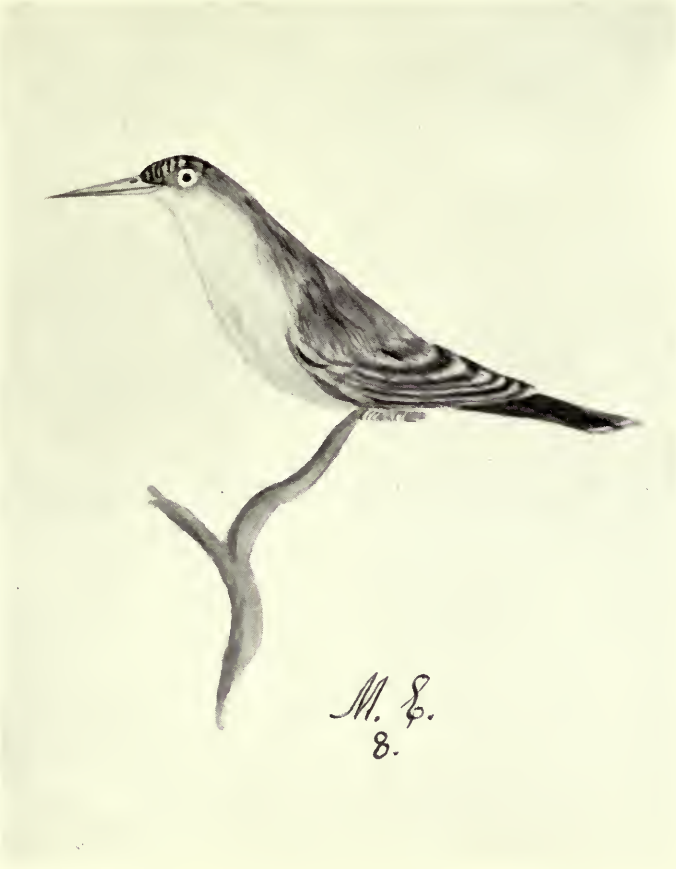
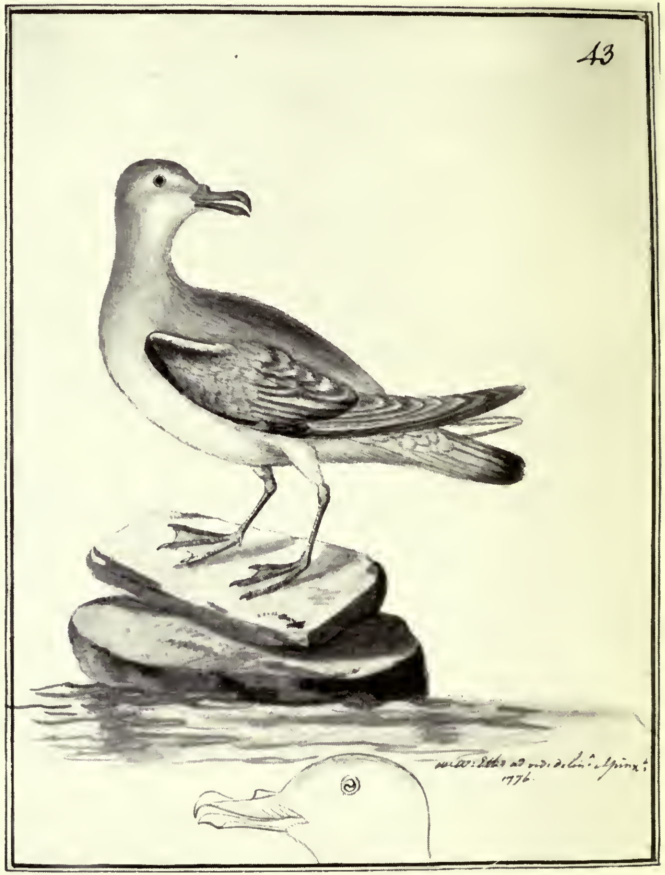
PLATE 37

(a) *Conopoderas caffra longirostris* (Gmelin), 1789. Long-billed Warbler of the Society Islands. By an unknown artist, on Cook's second voyage. (Royal Scottish Museum M.E. 8.)

(b) (?) *Pachyptila belcheri* (Math.) 1912. Slender-billed Whale-bird. By W. Ellis, on Cook's third voyage, with a sketch of a head of another species. (B.M. (N.H.) Ellis Drawings, pl. 43.)



37*a*


43
Wm: Ellis ad viv: delin: et pinx: 1776.

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